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THE AMERICAN YEAR BOOK

A Record of Events and Progress

YEAR 1945

EDITOR

WILLIAM M. SCHUYLER

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THE AMERICAN YEAR BOOK

THE
AMERICAN YEAR BOOK

A RECORD OF EVENTS AND PROGRESS

PART ONE

POLITICAL—NATIONAL AND INTERNATIONAL

DIVISION I
AMERICAN POLITICAL HISTORY

THE PRESIDENT AND HIS POLICIES

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CHANGE IN PRESIDENTS

Franklin Delano Roosevelt, the only President of the United States to be elected for more than two terms, died suddenly on April 12 at Warm Springs, Georgia, and was succeeded immediately by Harry S. Truman, of Missouri, the Vice President. President Roosevelt had served slightly less than three months of his fourth term.

ROOSEVELT'S STATE OF THE UNION MESSAGE

On January 6, 1945 President Roosevelt sent to Congress his message on the state of the Union. In it he declared that the war must—and would—be waged to ultimate victory. He warned, however, that we must never make the mistake of assuming that the Germans were beaten until the last Nazi had surrendered. Reviewing the basic strategy of the war, he said that the tremendous effort of the first years had been directed toward the concentration of men and supplies in the various theaters of action at the points where they could hurt our enemies most. He characterized the cross-channel invasion in Europe as "the greatest amphibious operation in the history of the world," but also emphasized the importance of the battle along the vitally important Italian front.

Turning to the Pacific, President Roosevelt related that during the year we had driven the Japanese back more than 3,000 miles across the Central Pacific, had cut their forces in the Philippines in two, and had struck a tremendous blow at Japanese naval power in the engagements in the waters of the Philippines. Our overall strategy, he said, had not neglected the important task of rendering all possible aid to China.

The President recalled that a year ago he had recommended that Congress adopt a national service act as the most efficient and democratic way of insuring full production for our war requirements, but that Congress had failed to do so. He repeated the call upon Congress to enact the measure for the total mobilization of all our human resources for the prosecution of the war. Stressing the shortage of nurses at army hospitals, President Roosevelt urged that the Selective Service Act be amended to provide for the induction of nurses into the armed forces.

In the field of foreign policy, the President said that we proposed to stand together with the United Nations not only for war but for victory after the war. He defended the principles of the Atlantic Charter and declared that we would not hesitate to use our influence to secure so far as humanly possible the fulfillment of those principles. He said that, while it was our purpose to help the peace-loving peoples of Europe to live together as good neighbors, we must not permit the many specific problems of adjustment connected with the liberation of Europe to delay the establishment of permanent machinery for the maintenance of peace. The President expressed pleasure at the return of the French nation to the ranks of the United Nations and said we fully recognized France's vital interest in a lasting solution of the German problem.

Returning to his discussion of domestic issues, President Roosevelt declared that we must have universal military training after the war, and promised to send a special message to Congress on the subject. He referred to the economic bill of rights which he had enunciated in the previous year and said that the Federal Government must see to it that these rights became realities. Although our policy would be to rely as much as possible on private enterprise to supply jobs, the President intimated that if private enterprise failed to do so the Government might assist through the development of our natural resources and other useful public works, among them our river-watershed projects, airports, and national highways. He also urged the expansion of the social-security program and adequate health and educational programs. He recommended to Congress the study of the tax system as preparation for peacetime encouragement of capital to invest and provide jobs. His suggestions included the reduction or elimination of taxes which bore too heavily on consumption.

The President closed his message on a level of high optimism and prophecy in these words: "This new year of 1945 can be the greatest year of achievement in human history. 1945 can see the final ending of the Nazi-Fascist reign of terror in Europe. 1945 can see the closing in of the forces of retribution about the center of the malignant power of imperialistic Japan. Most important of all—1945 can and must see the substantial beginning of the organization of world peace."

BUDGET MESSAGE

President Roosevelt, in his budget message transmitted to Congress on Jan. 9, 1945, stressed the fact that the actual expenditures of the Federal Government would depend largely on the course of the war. He proposed to use $70,000,000,000 as a tentative estimate of war expenditures for the fiscal year 1946. For purposes other than war he recommended appropriations, in general and specific accounts, to cover estimated expenditures of $13,000,000,000. He proposed no substantial change in tax legislation at the time of submitting the budget.

Referring to over-optimistic speculation about the possible cut in war expenditures when major hostilities in Europe came to an end, the President warned that we should make a great mistake if, in our military and budgetary planning, we should underestimate the task of defeating Japan. He added that the task in Europe would not end with the cessation of hostilities there but that we must accept our share of responsibility for the administration of occupied territories and for relief and rehabilitation in the liberated areas. The uncertainties of war required that the budgets of the military agencies should be sufficiently large and flexible to permit them to meet all demands that might arise.

Tentative estimates of appropriations included provisions for continuing lend-lease to our Allies. About one-sixth of the current war outlays, the President said, were for lend-lease and for relief and rehabilitation. He promised to continue lend-lease to the full extent necessary to win the war but added that it would be liquidated with the end of the war.

In his review of appropriations and expenditures for other than war activities, President Roosevelt pointed to the inevitable increase in expenditures for war veterans, interest in the public debt, and tax refunds. To insure continued agricultural production he recommended appropriations for the Department of Agriculture, including the War Food Administration, of $512,000,000. He described this as a wartime budget, which did not reflect desirable long-time objectives, namely, the elimination of malnutrition and rural poverty. He said that the Government was committed to support agricultural prices to farmers at a fair level for two years after the war. In the field of Social Security he asked Congress to give early consideration to extension and improvement of our social security system and to reexamine the financial basis of the program. He recommended reorganization of the basic structure of the Office of Education, stating that this reorganization would facilitate service to the states in the development of more adequate educational programs with proper emphasis on all the various aspects of education. Although recommendations for the actual construction of public works would be restricted to those projects which contributed to the war effort, the President urged that plans should be made for the post-war period.

While stating that reductions in the Federal personnel would be made as the course of the war permitted, President Roosevelt said that the main concern was to keep essential personnel on the job. He recommended that Congress enact permanent legislation authorizing overtime compensation of Government employees at true time and one-half rates, and also asked prompt reexamination of Federal salary rates with a view to making adjustments consistent with the national stabilization policy.

Summarizing estimated expenditures, the President pointed out that 84 per cent were for direct war purposes; 12 per cent were for veterans, interest on the public debt, and tax refunds; and only 4 per cent for all other activities of the Federal Government. With respect to receipts, he reported that under existing legislation they were expected to decline from $45,700,000,000 in the current fiscal year to $41,300,000,000 in the fiscal year 1946. He insisted that wartime taxes must be maintained as long as large-scale war expenditures were necessary but favored a policy of orderly but steady debt reduction, consistent with the objectives of long-run economic policy. Looking to the human side of reconversion, which required effective organization to aid discharged war veterans and war workers to find their way back into productive peacetime employment, the President said, that in addition to legislation then on the books, a strong, integrated system of public employment offices was a basic necessity. This objective could best be accomplished, he said, by the establishment, through permanent legislation, of an effective national employment service with adequate coverages throughout the nation. With respect to labor disputes, the President advocated the working out of a sound long-range policy implemented by permanent mediation machinery for the adjustment of labor disputes. He held that every effort ought to be made to achieve full civilian use of plants built for war purposes when they were no longer needed for war production and to facilitate their rapid transfer to private industry for productive use. He repeated his recommendation of the previous year that Congress make appropriations to provide statistical information concerning business activities and markets, employment and unemployment, incomes, expenditures and savings, which was urgently needed as a guide for economic policies during the remainder of the war and during the reconversion and post-war periods.

Referring to international financial affairs, President Roosevelt said that a concrete program for monetary and financial cooperation at an early date was essential. He urged acceptance of the articles of agreement for the establishment of an International Monetary Fund and an International Bank for Reconstruction and Development and recommended enactment of legislation which would permit the United States to make its proportionate investment in the Fund and in the Bank. He also recommended early expansion of the lending power of the Export-Import Bank. He stated that it was essential that legislation impeding our foreign investment programs by restricting loans to those countries which were in default on loans arising out of the First World War should be repealed.

In order to preserve the balance between incomes, savings, and expenditures, the President said it would be necessary to retain the machinery for allocation and price controls as long as certain materials and finished goods were in short supply. He therefore recommended extension of the Economic Stabilization Act before its expiration on June 30, 1945. He said that in general it would be our policy to hold the overall cost of living and to permit only such readjustments as were conducive to the full utilization of available resources and compatible with the general objective of economic stabilization. Controls, needed in war, must be readjusted to changing levels of war production and civilian production.

Estimating that as a result of postwar demobilization, before long there might be 60,000,000 men and women to be employed, the President declared that we must attack the employment problem on every front. This included overhauling the wartime tax structure to stimulate consumers' demand and to promote business investment; the provision of opportunities for new and growing business; and the development of the human standards and material resources of the nation. This program included social security and medical care; better education, public health and nutrition; the improvement of homes, cities and farms; and the development of transportation facilities and river valleys.

FOURTH INAUGURAL ADDRESS

In his inaugural address on Jan. 20, 1945 President Roosevelt declared that "in the days and years that are to come we shall work for a just and honorable peace, a durable peace." He added that "we have learned that we can not live alone, at peace; that our own well-being is dependent upon the well-being of other nations, far away. We have learned that we must live as men, and not as ostriches, nor as dogs in the manger. We have learned to be citizens of the world, members of the human community."

REQUEST FOR RESIGNATION OF JESSE JONES

In a letter of Jan. 20, 1945, President Roosevelt informed Jesse Jones that Henry A. Wallace deserved a reward for his unselfish service during the preceding presidential campaign, and since Wallace thought he could do the greatest amount of good in the Department of Commerce, the President asked Jones to give up his post as Secretary of Commerce. He expressed the hope that Jones would continue in government service and intimated that he might have an ambassadorship if he desired. Jones submitted his resignation but declined to consider the proffer of another position.

BRETTON WOODS PROPOSALS

In a message to Congress on Feb. 12, President Roosevelt recommended the immediate adoption of the Bretton Woods Agreements. He described them as the cornerstone for international economic cooperation just as the Dumbarton Oaks proposal for a permanent United Nations was the cornerstone for international political cooperation. He declared that it was time for the United States to take the lead in establishing the principle of economic cooperation as the foundation for expanded world trade.

REPORT ON YALTA CONFERENCE

On March 1, 1945, President Roosevelt reported to Congress on his conference at Yalta with Prime Minister Churchill and Marshal Stalin. The two main purposes of the conference, he said, were first to defeat Germany as quickly as possible and second "to continue to build the foundation for an international accord which would bring order and security after the chaos of war, and which would give some assurance of lasting peace among the nations of the world." He announced that arrangements had been made for periodic meetings of the Foreign Secretaries of Great Britain, Russia, and the United States at intervals of three or four months. He listed the problems of vital political consequence discussed at the conference. These were the occupation and control of Germany after victory; the differences over the international security organization after the Dumbarton Oaks Conference; the problems common to all of the areas liberated from the Nazi control; and the special problems created by Poland and Yugoslavia. On all of these matters unanimous agreement was reached.

In his report the President announced that a conference of all the United Nations of the world would meet in San Francisco on April 25, 1945. With a view toward gaining senatorial support for our participation in the United Nations Organization, he stated that the Senate and House of Representatives would both be represented at the San Francisco Conference, and, further, that our congressional delegation would consist of an equal number of Republican and Democratic members. He reported that France had been invited to participate as a fourth member of the proposed Allied Council on Germany and also to join as a sponsor of the International Conference at San Francisco. Regarding the lack of agreement at Dumbarton Oaks on the procedure of voting in the Security Council of the United Nations, the President said that a proposal made by the Americans and accepted by the British and Russians would be announced publicly in a short time. He regarded the conclusions reached on this point as "a fair solution of this complicated and difficult problem."

So far as the Yalta Conference as a whole was concerned, President Roosevelt characterized it as "a turning point in American history"—a choice soon to be presented to the Senate and to the American people whether we should take the responsibility for world collaboration or bear the responsibility for another world conflict.

POLICY TOWARD FRANCO

On Sept. 26, the Department of State made public a letter written by President Roosevelt on March 10 to Norman Armour, newly appointed ambassador to Spain, in which it was stated that Spain could not expect economic aid or other manifestations of friendship from the United States while a totalitarian government remained in control in that country. In the letter the President said he could see no place in the community of nations for governments founded on Fascist principles. He expressed the hope that the time might soon come when Spain would play "the role and responsibility which we feel it should assume in the field of international cooperation and understanding." The letter was interpreted as a diplomatic blow aimed at the régime of Generalissimo Franco.

POLICY RESPECTING PALESTINE

Letters exchanged between the King of Saudi Arabia and President Roosevelt on March 10, but not published until Oct. 18, brought out the President's policy on the dispute between Jews and Arabs in Palestine. President Roosevelt recalled to the King's attention that on previous occasions he had made clear the desire of the American Government that no decision should be taken with respect to the basic situation in Palestine without full consultation with both Arabs and Jews. He added the assurance that he "would take no action in his capacity as Chief of the Executive Branch of this Government, which might prove hostile to the Arab people."

ROOSEVELT MESSAGE ON TARIFFS

On March 26, President Roosevelt warned Congress that while the hopes for a peaceful world depended on the outcome of the San Francisco Conference, we could not succeed in building a peaceful world unless we built an economically healthy world. He therefore recommended to Congress the renewal of the reciprocal trade agreement program inaugurated in 1934, renewed on three occasions, and which was due to expire in June. After reviewing the history of the trade agreement program, the President recommended that the 50 per cent limit on rates be brought up to date by an amendment relating it to the rates of 1945 instead of 1934, thus giving the President the powers necessary to deal with other nations on the basis of the existing situation. He said the legislation was "essential to the substantial increase in our foreign trade which is necessary for full employment and improved standards of living."

FOOD AND AGRICULTURAL ORGANIZATION

Transmitting to Congress on March 26 for its information and consideration the first report to the governments of the United Nations by the Interim Commission on Food and Agriculture, President Roosevelt recommended that Congress authorize acceptance of the constitution and the participation of the United Nations in the work of the food and agricultural organization. He said that our participation would be an essential step in the collaboration of nations toward achieving freedom from want, although at the same time we would retain complete freedom of action in determining our national agricultural policies.

MANPOWER TRUCE

In a fourth direct appeal for enactment of a manpower control bill, President Roosevelt, on March 28, 1945, told the Senate that its rejection of the then pending compromise measure would make the successful conduct of the war even more difficult. He urged the Senate to adopt the conference report, even though the compromise was not all that was recommended by General Marshall, Admiral King, and himself. Adoption of the report would serve notice on our enemies that there would be no slowing down in our war effort, the President declared.

REPORTS ON UNRRA

In a letter of April 11, transmitting to Congress the quarterly report on UNRRA, President Roosevelt stated that UNRRA had shipped some supplies to the areas liberated from Nazi control and that its personnel had begun to aid in the distribution of these supplies. UNRRA, he added, had also begun to assist in the repatriation of the millions of the United Nations nationals who had been displaced by the war, as well as in the effort to control the spread of disease among the victims of war. The report disclosed that countries and peoples freed from Axis control would need $100,000,000,000 of food, clothing, and other relief, but the countries themselves would furnish about 92 per cent of their own needs.

ROOSEVELT'S LAST PUBLIC STATEMENT

President Roosevelt, in a speech written the night before he died and intended for delivery by radio on April 13 in observance of Jefferson Day dinners throughout the country, declared that Americans were determined there should not be a Third World War. He asserted that we sought enduring peace and "an end to this brutal, inhuman and thoroughly impractical method of settling the differences between governments" by wars. If civilization is to survive, he said, "we must cultivate the science of human relationships—the ability of all peoples, of all kinds, to live together, in the same world, at peace."

TRUMAN'S FIRST ADDRESS

In his first address to Congress on April 16, President Truman pledged warfare against Germany and Japan until their final and complete defeat. He appealed to every American to support the efforts to build a strong and lasting United Nations Organization.

UNITED NATIONS CONFERENCE AND CHARTER

Speaking over the radio on April 26 President Truman greeted the delegates to the United Nations Conference in San Francisco. He said that it was not the purpose of the conference to draft a treaty of peace in the old sense of the term but to devote its energies to the single problem of setting up the essential organization to keep the peace.

At the close of the conference the President delivered an address to the delegates on June 26. After complimenting them on the successful accomplishment of their allotted task, he said that the Charter of the United Nations was a solid structure upon which we can build for a better world. He predicted that the Charter would be expanded and improved as time goes on.

The President submitted the United Nations Charter to the Senate on July 2 and asked for its prompt ratification.

PRICE CONTROL AND LABOR POLICIES

On May 1, 1945, President Truman gave emphatic support to the Office of Price Administration and expressed the hope that Congress would extend the price control law for at least another year. On June 7 he declared that the Little Steel formula still stood, but he intimated that there might be a revision in the light of studies being made. On Aug. 9, in a letter to Chairman Krug, the President called on the War Production Board to extend into the reconversion program the spurs and controls it applied in building up the great production of the war, but he emphasized that restrictions should be lifted as soon as they were no longer required.

In a statement on Aug. 16, the President declared that our national welfare required that, during the reconversion period, production of civilian goods and services go forward without interruption, and that labor and industry cooperate to keep strikes and lockouts at a minimum. He said that, in the near future, he would call a conference of representatives of organized labor and industry for the purpose of working out by agreement means to minimize the interruption of production by labor disputes in the reconversion period.

When strikes shut off a third of the country's refinery capacity, President Truman on Oct. 4 ordered government seizure of 26 oil producing and refining companies and directed Secretary of the Navy Forrestal to operate them. In a speech delivered on Oct. 30 he advocated substantially higher wages for American laborers but held that prices must be kept stable. He said that wage increases were necessary to prevent deflation, but he warned that excessive wage boosts requiring higher prices would bring inflation. In an accompanying executive order, he provided the machinery under which the Government would give its approval to price increases necessitated by certain wage increase demands.

At the opening of the labor-management conference on Nov. 5 the President stated that the conference had been called in the expectation that it would furnish a broad and permanent foundation for industrial peace and progress.

On Dec. 3, President Truman announced his intention to set up fact-finding boards to deal with the General Motors strike and the threatened walkout of steel workers, and asked Congress for permanent machinery to handle labor disputes in important nation-wide industries. The proposed law would place a ban on strikes or lockouts for at least 30 days after certification by the Secretary of Labor to the effect that a dispute continued despite his efforts at conciliation. A fact-finding board, similar to the emergency board provided for under the Railway Labor Act, would be appointed by the President or his authorized agent. While neither labor nor management would be legally bound to follow the recommendations of fact-finding boards, the general public would know all the facts, with the result, the President hoped, that in most cases both sides would accept the recommendations.

On Dec. 12, the President named Judge Walter P. Stacy, Lloyd G. Garrison, and Milton Eisenhower as members of the fact-finding board in the General Motors strike. In another effort to control prices and to assist in solving the housing problem, President Truman asked that dwellings be placed under price control and directed reinstatement of the priority system on building materials. He named Wilson W. Wyatt, former mayor of Louisville, to be special housing expediter under the Office of War Mobilization and Reconversion.

A week later, on Dec. 20, President Truman issued a statement asserting that it was essential to the fulfillment of the duty of a fact-finding board in an industrial dispute where one of the questions at issue was wages, that the board have the authority to examine the books of the employer in order that it might determine the ability of the employer to pay an increase in wages. He expressed the hope that Congress would grant subpoena power to the fact-finding boards. He concluded his statement with the remark that "in view of the public interest involved, it would be highly unfortunate if any party to a dispute should refuse to cooperate with a fact-finding board."

ECONOMY PROGRAM

Because of changing war conditions, President Truman on May 2 recommended to Congress an economy program looking to the saving of more than $7,445,000,000 in the budget. The largest single item was that of $7,000,000,000 to be cut from funds available to the Maritime Commission for ship construction. He called for a reduction of more than $80,000,000 in the 1946 budgets of eight agencies and also informed Congress that he was terminating the Office of Civilian Defense by June 30 and withdrawing its proposed budget of $369,000 for the next fiscal year.

VETO OF FARM LABOR DEFERMENT

On May 3, President Truman vetoed a proposed amendment to the Selective Training and Service Act of 1940 which would have deferred registrants engaged in "agricultural occupations or endeavors essential to the war effort." He expressed doubt that it was the real intent of Congress that agricultural workers should be given blanket deferment as a group. The practical effect of the amendment, he said, would be to single out one special class of our citizens and put it on a plane above both industrial occupation and military service.

LEND-LEASE

President Truman transmitted to Congress on May 22 the nineteenth report of operations under the Lend-Lease Act. He asserted that lend-lease and reverse lend-lease as the basic mechanisms of combined Allied war supply made a vital contribution to the victory over Nazi Germany. While admitting that the task of reconversion and reconstruction was commencing, he said that lend-lease and reverse lend-lease must continue as a military necessity on the scale required to build the overwhelming power which alone could bring an early and complete victory over Japan.

On Aug. 21, the President directed the Foreign Economic Administration to take steps immediately to discontinue all lend-lease operations and to notify foreign governments receiving lend-lease of its action. At his press conference on Aug. 23, the President explained that lend-lease had been devised and used purely as a weapon of war and that, since there was no state of war, the vast United Nations' supply was no longer necessary. On Aug. 30, in his report on lend-lease operations, he told Congress that to attempt to collect the $42,000,000,000 sent to the United Nations in sinews of war would threaten their political stability and help sow the seeds of another war. He said that the lend-lease program had proved one of the most effective instruments of achieving victory and remarked that our Government was working out arrangements to bridge the gap left by the sudden ending of our financial support of the Allies.

REORGANIZATION OF EXECUTIVE BRANCH

In a message of May 24, the President called attention to the problem of an orderly transition from war to peace and asked Congress to enact legislation aimed at improving the organization of the executive branch of the Government. He suggested that the legislation should be generally similar to the Reorganization Act of 1939; that such legislation should be of permanent duration; that no agency of the executive branch should be exempted from the scope of the legislation; and that the legislation should be sufficiently broad and flexible to permit of any form of organizational adjustment for which necessity might arise.

UNEMPLOYMENT COMPENSATION DURING RECONVERSION

In a message to Congress on May 28, President Truman reviewed steps already taken to prepare the country for economic adjustments which the nation would face during the transition from war to peace but pointed to the lack of adequate benefits for workers temporarily unemployed during the transition period and urged Congress to close this gap. After a summary of the major effects of existing state laws, he recommended that Congress take emergency action to widen the coverage of unemployment compensation and to increase the amount and duration of benefits, at least for the duration of the emergency period. In his opinion, every eligible worker should be entitled to 26 weeks of benefits in any one year, if his unemployment continued that long, and the maximum payment should be raised from present levels to not less than $25 per week.

When the Senate Ways and Means Committee rejected the President's proposal and decided to postpone indefinitely further consideration of the Senate bill or related House measures, the President called the Democratic members of the committee into conference on Sept. 27, asserted that they had let him down, and said he expected the House not to follow their example.

PROSECUTION OF WAR WITH JAPAN

Presenting to Congress on June 1 a long and detailed account of the war against Japan, the President declared that our primary task was to win the war as completely and quickly as possible. Our military policy called for pinning down the Japanese forces and keeping them divided so they could be destroyed piece by piece; concentrating overwhelming power on each segment we attack; using ships, aircraft, armor, artillery, and other material in massive concentrations; and applying relentless pressure to the enemy so that he could not rest or reorganize his battered forces to meet our next attack.

SALARIES OF MEMBERS OF CONGRESS

Writing to Senator Kenneth McKellar on June 11, President Truman declared that "the salaries of the members of the House of Representatives and of the Senate should be commensurate with the nature and volume of their work and with their responsibilities." While it would not be possible or wise to increase the salaries to the proper level all at once, he suggested that the adjustment should be in the full amount consistent with the Little Steel formula. Later, congressional salaries, in his opinion, should be increased to at least $15,000.

SUCCESSION TO PRESIDENCY

In a message to Congress on June 19, President Truman asked for a change in the order of succession to the Presidency. Expressing the opinion that so far as possible the office of President should be filled by an elective officer, he recommended legislation placing the Speaker of the House of Rrepresentatives first in order of succession and the President *pro tempore* of the Senate second, to be followed by Cabinet members as at present provided. In all cases the person selected should not serve any longer than until the next Congressional election or until a special election called for the purpose of electing a new President or Vice President.

POLICY TOWARD UNRRA

On June 29 President Truman transmitted to Congress the third quarterly report on UNRRA. He reported that shipments of supplies were going forward in increasing volume to Greece, Poland, Yugoslavia, Czechoslovakia, and other nations but added that what had been accomplished was only a beginning. He said that the United States, as a member of the UNRRA, was determined to do its part in furnishing the ships and supplies required to meet critical needs.

In a message on Nov. 13, the President referred to the recommendation of the Council of UNRRA that each member country whose country had not been invaded by the enemy should contribute an additional amount to its original contribution equal to 1 per cent of its national income for the fiscal year 1943, and requested Congress to authorize a new appropriation of $1,350,000,000 for participation in the activities of UNRRA.

SURPLUS PROPERTY ADMINISTRATOR

Convinced that the effective performance of the vast administrative task remaining for the disposal of surplus property required that authority to make decisions and responsibility for those decisions should be centered in a single official, the President, on July 17, requested Congress to amend the Surplus Property Act of 1944 by substituting a single administrator for the present Surplus Property Board.

STATEMENTS OF FOREIGN POLICY

On the occasion of the raising of the American flag over the group control headquarters in Berlin on July 20, President Truman made an important pronouncement of American foreign policy in the following words: "Let us not forget that we are fighting for peace and for the welfare of mankind. We are not fighting for conquest. There is not one piece of territory or one thing of a monetary nature that we want out of this war."

From July 17 to July 25, he attended conferences of the Big Three at Potsdam at which important decisions and agreements were reached concerning the occupation of Germany and the policy with respect to other European countries. On Aug. 9 he made a report by radio to the American people in the course of which he stated that, although the United States wanted no territory or profit out of the war, we were going "to maintain the military bases necessary for the complete protection of our interests and of world peace." Such bases would be acquired, he added, "by arrangements consistent with the United Nations Charter." He declared that no secret agreements or commitments, apart from military arrangements, had been made at the Berlin Conference. Of the questions discussed he regarded winning the war against Japan as the most important. Referring to the use of the atomic bomb against Japan, he said that we would continue to use it "until we completely destroy Japan's power to make war."

In a Navy Day speech in New York on Oct. 24, the President laid down 12 fundamentals of the foreign policy of the United States:

1. We seek no territorial expansion or selfish advantage. We have no plans for aggression against any other state, large or small. We have no objective which need clash with the peaceful aims of any other nations.

2. We believe in the eventual return of sovereign rights and self-government to all peoples who have been deprived of them by force.

3. We shall approve no territorial changes in any friendly part of the world unless they accord with the freely expressed wishes of the people concerned.

4. We believe that all peoples who are prepared for self-government should be permitted to choose their own form of government by their own freely expressed choice, without interference from any foreign source. That is true in Europe, in Asia, in Africa, as well as in the Western Hemisphere.

5. By the combined and cooperative action of our war allies, we shall help the defeated enemy states establish peaceful democratic governments of their own free choice. And we shall try to attain a world in which nazism, fascism and military aggression can not exist.

6. We shall refuse to recognize any government imposed upon any nation by the force of any foreign power. In some cases it may be impossible to prevent forceful imposition of such a government, but the United States will not recognize any such government.

7. We believe that all nations should have the freedom of the seas and equal rights to the navigation of boundary rivers and waterways and of rivers and waterways which pass through more than one country.

8. We believe that all states which are accepted in the society of nations should have access on equal terms to the trade and the raw materials of the world.

9. We believe that the sovereign states of the Western Hemisphere, without interference from outside the Western Hemisphere, must work together as good neighbors in the solution of their common problems.

10. We believe that full economic collaboration between all nations, great and small, is essential to the improvement of living conditions all over the world, and to the establishment of freedom from fear and freedom from want.

11. We shall continue to strive to promote freedom of expression and freedom of religion throughout the peace-loving areas of the world.

12. We are convinced that the preservation of peace between nations requires a united nations organization composed of all the peace-loving nations of the world who are willing jointly to use force if necessary to insure peace.

ATOMIC BOMB

On Aug. 6, President Truman issued a statement announcing the first use of the atomic bomb. After a review of the history of the development of the bomb he said that, although normally, following the habit of our scientists, everything about the work with atomic energy would be made public, under present circumstances it was not intended to divulge the terminal processes of production or all the military applications, pending further examination of possible methods of protecting us and the rest of the world from the danger of sudden destruction. He announced that he would recommend that Congress consider promptly the establishment of an appropriate commission to control the production and use of atomic power within the United States.

Through an executive order issued on Sept. 13 the President sought to protect the sources of materials for the atomic bomb by barring the sale or other disposition of all public lands containing radio-active mineral substances. He followed this action by recommending to Congress, in a message under date of Oct. 3, that it enact legislation to fix a policy with respect to our existing atomic bomb plants, and to control all sources of atomic energy and all activities connected with its development and use in the United States. The legislation, in his opinion, should give jurisdiction for these purposes to an Atomic Energy Commission with members appointed by the President with the advice and consent of the Senate. Congress should lay down the basic principles for all the activities of the Commission, the objectives of which should be the promotion of the national welfare, securing the national defense, safeguarding world peace, and the acquisition of further knowledge concerning atomic energy.

On Nov. 15, President Truman and Prime Ministers Clement Attlee of Great Britain and W. L. Mackenzie King of Canada issued a joint declaration on atomic energy. They stated that they were "not convinced that the spreading of the specialized information regarding the practical application of atomic energy, before it is possible to devise effective, reciprocal, and enforceable safeguards acceptable to all nations, would contribute to a constructive solution of the problem of the atomic bomb." They advocated the setting up of a commission under the United Nations Organization to prepare proposals for extending between all nations the exchange of basic scientific information for peaceful ends and for the control of atomic energy to the extent necessary to insure its use only for peaceful purposes.

POLICY RESPECTING PALESTINE

Being asked at his press conference on Aug. 16 what was the American position on Palestine, President Truman replied that we wanted to let as many Jews into Palestine as was possible and still maintain civil peace. He revealed for the first time that this position had been registered with the British at the Big Three's Berlin Conference.

On Nov. 13 the President issued a statement in which he reported that the situation of the Jews in Europe and in Palestine had been the subject of frequent discussions with Prime Minister Attlee and that a formal agreement had been reached whereby a joint committee had been agreed upon to examine the entire question and make recommendations necessary to meet immediate needs.

POLICY TOWARD FRANCO

Asked at his news conference on Aug. 23 to elaborate on United States policy toward Spain, President Truman recalled the Potsdam declaration of the Big Three on their determination to outlaw the Franco régime from the United Nations organization, and added emphatically that "none of us likes Franco or his Government."

COOPERATION WITH DE GAULLE

At the end of General Charles de Gaulle's four-day visit to Washington on Aug. 25, President Truman and General de Gaulle issued a joint statement in which they reported that they had fully recognized "the fundamental harmony between French and American aims in the construction of the post-war world and have expressed their readiness to act in accordance with this mutual understanding by establishing an even closer cooperation between the two countries."

POLICY TOWARD CHINA

In a statement issued on Dec. 15, shortly after General George C. Marshall had left for China as ambassador, President Truman laid down the policy of the United States toward China. He set forth two primary points: (1) That a cessation of hostilities be arranged between the armies of the National Government and the Chinese Communists for the purpose of completing the return of all China to effective Chinese control; and (2) that a national conference of representatives of major political elements be arranged to develop an early solution to the current internal strife and bring about the unification of China.

The President intimated that if these things were not done China could not expect the post-war assistance she had anticipated; if they were, our Government would be prepared to consider favorably requests for credits and loans.

PEACETIME PROGRAM

President Truman sent to Congress on Sept. 6 a 16,000-word message outlining the peacetime program of his Administration. He proposed a 21-point program of legislation, calling for Congressional cooperation to insure that the transition from war to peace would not cause too much unemployment and to provide a stable economy and a high standard of living. He set as his immediate goal the following objectives: demobilization as soon as possible of armed forces no longer needed; cancellation and settlement of war contracts as soon as possible; clearance of war plants so as to permit contractors to proceed with peacetime production; holding the line on prices and rents until fair competition can operate to prevent inflation and undue hardships on consumers; holding wages in line where their increase would cause inflationary price rises; removing all possible wartime government controls in order to speed and encourage reconversion and expansion; keeping only those controls which are necessary to help reconversion and expansion by preventing bottlenecks, shortages of material, and inflation; and preventing rapid decrease of wage incomes or purchasing power.

The President's proposals for legislation included: legislation to supplement state benefits for the present emergency by increasing them to provide 26 weeks of protection to a weekly maximum of not less than $25, with coverage extended to include Federal employees, maritime workers, and others not now insured; a substantial increase in the 40-cent minimum wage to a level which will eliminate substandards of living; no action by Congress to proclaim the end of the war, in order to preserve war powers and wartime agencies necessary for the present; legislation authorizing the President to reorganize the executive branch of the Government; early action on the full employment bill to provide, among other things, machinery for a continuously full employment policy; legislation putting the Fair Employment Practice Committee on a permanent basis; continuation of the United States Employment Service at least until June 30, 1947, before returning it to the States; transfer of $500,000,000 of lend-lease funds to the Commodity Credit Corporation for price support; a well-rounded crop insurance program; continuation and strengthening of scientific research for agriculture and forestry; development of farm export markets and adjustment of farm programs to peacetime needs; providing Army and Navy inducements for voluntary enlistments, together with inductions from the 18-25 age group for maximum service of two years; broad and comprehensive legislation to help private enterprise build between 10,000,000 and 15,000,000 houses in the next ten years; Federal aid for slum clearance; resumption of the pre-war program of Federal aid for low-rent housing; quickening the rate of progress in rural housing; establishment of a single agency for Federal scientific research and the promotion and support of private research; providing as soon as possible limited tax reductions for the calendar year 1946; later modernization of the tax structure and further cuts; creation of a single administrator to replace the present three-man Surplus Property Board; clarification and liberalization of provisions for hospitals and medical care, vocational training and education loans guarantees and life insurance for veterans; social security coverage for the period of service; a program for regional development of the natural resources of the country's great river valleys, construction of Federal buildings, roads and airports, grants to states and municipalities for public works as well as Federal grants for hospital construction; salary increase to $20,000 for House and Senate members; repeal of the House expense allowance; provision of an adequate retirement system for members of Congress; adequate wage scales for the executive and judicial branches of the Government; and acquisition and retention of stock piles of materials in which the country is naturally deficient but which are necessary to supply the needs of national defense.

In the foreign field, the President said that, with the arrival of V-J Day, lend-lease aid had practically come to an end. He urged that lend-lease accounts should be settled on a basis of conditions which would "permit generally a sound world-wide economy and contribute to international peace and our own national economy." He stated that we were preparing to extend the operations of the Export-Import Bank and had taken steps to carry out the Bretton Woods proposals, the objective being to enable the peace-loving nations of the world to become self-supporting. He advised the repeal of the Johnson Act, and full American support of UNRRA.

On Sept. 17 the President issued a statement on aid to Europe in which he related that, with the exception of sugar, fats, and oils, the United States Government was in a position to fulfill the main requests of Europe. The limiting factor in meeting the minimum needs of the liberated peoples was no longer one of shipping but a problem of finance: how to work out credits or other financial arrangements with the European governments, and how to make additional funds available to UNRRA for emergency relief. The President said that it was an American responsibility to see that this country should do its full part in helping to restore health and strength to those who fought at our side in Europe and in the Far East.

UNITED STATES EMPLOYMENT SERVICE

The President pocket-vetoed a bill to cut back war-expenditure authorizations more than $51,000,000,000 because it carried a rider to return the United States Employment Service to the States within 100 days. He said that the rider would immeasurably retard the re-employment program at the very time local employment offices would be experiencing the peak work load in their history. He criticized Congress strongly for tacking the objectionable rider to a major appropriation bill which he found otherwise commendable.

CONSERVATION MEASURES

President Truman, by proclamations and executive orders, on Sept. 28 asserted the exclusive right of the United States to all mineral resources in the Continental Shelf running out to an off-shore depth of 600 feet from the United States, its territories and possessions. He also asserted this country's right to regulate and control all fishing grounds contiguous to its boundaries where such grounds have been developed exclusively by American nationals.

In dedicating the Kentucky Dam on Oct. 10, the President praised the Tennessee Valley Authority project as a genuine national achievement. He said that he had always been a supporter of the TVA and he favored the application of the same principles to other river valleys.

ST. LAWRENCE SEAWAY

President Truman sent a message to Congress on Oct. 3, strongly recommending the speedy approval by Congress of the arrangement of March 19, 1941, between the United States and Canada for the development of the Great Lakes-St. Lawrence Basin, as a part of the program of international cooperation, expansion of foreign trade, and domestic progress in commerce and industry.

POLICY TOWARD PHILIPPINES

In a statement read to his press conference on Oct. 3, President Truman served notice that he would not consider advancing the date for proclaiming the independence of the Philippines before July 4, 1946, unless and until adequate provision for their rehabilitation and satisfactory arrangements concerning their relations with the United States after independence had been made.

On Oct. 26, he warned that continued existence of a Philippines guerrilla army threatened the stability of government and declared that it must be disbanded while pro-Japanese puppets were being purged and punished. He made it plain that he was not satisfied with the steps which President Osmena's Government had taken to get the Philippines back on their feet. He was especially critical of the slowness of the Commonwealth Government in punishing disloyal leaders.

POLICY TOWARD PUERTO RICO

President Truman told Congress in a special message on Oct. 16 that the people of Puerto Rico ought to have a chance to decide their own political status. He urged legislation providing such an opportunity and suggested four possible alternatives to be submitted: the right of the Puerto Ricans to elect their own governor, with a wider measure of local government; statehood; complete independence; and a dominion form of government. Our Government, in the opinion of the President, should be prepared to carry into effect whatever options were placed before the people of Puerto Rico, once the Puerto Ricans have expressed their preference.

MILITARY TRAINING

Warning that peace must be built upon power, as well as upon good will and good deeds, the President urged Congress on Oct. 23 to adopt a plan for universal military training for young men in the 18-20 age bracket. No exemptions should be allowed except for total physical disqualification.

NATIONAL HEALTH PROGRAM

President Truman told Congress in a special message on Nov. 19 that the health of the nation was a national concern. Pointing to the large number of rejections for military service as disclosed by the examinations conducted by the Selective Service System, he listed five basic problems which must be attacked vigorously. These were the number and distribution of doctors and hospitals; the need for development of public health services and maternal and child care; medical research and professional education; the high cost of individual medical care; and loss of earnings when sickness strikes. To meet these problems the President recommended that Congress adopt a comprehensive health program, consisting of five major parts: the construction of hospitals and related facilities; the expansion of public health, maternal and child health services, with more generous Federal grants to the states; the undertaking by the Federal Government of a broad program to strengthen professional education in medical and related fields, and to encourage and support medical research; the distribution of costs of all necessary medical, hospital, and related services through expansion of the existing compulsory social insurance system, with coverage of needy persons through appropriate premiums paid for them by public agencies; and the payment of benefits to replace at least part of the earnings that are lost during the period of sickness and long-term disability.

ARMY-NAVY MERGER

On Dec. 19, President Truman asked Congress to merge the Army and Navy into a single department. Warning that any future war would erupt suddenly, with the United States very likely the first target, he asserted that unification of the services was the best means of keeping the peace. He coupled his program with an urgent plea to Congress to approve his request for compulsory military training for 18-20 year-old youths. The Presidents merger proposal provided for a new department of national defense under a single civilian secretary. Air, land, and sea forces would enjoy equal status, all three being under separate assistant secretaries.

IMMIGRATION POLICY

Stating that the United States shared responsibility for relieving the suffering of displaced persons and refugees in Europe, President Truman, on Dec. 22, ordered the admission of such persons into this country at a maximum rate of 3,900 a month under existing immigration laws. He said that, although he had no intention of excluding the issuance of immigration visas in other parts of the world, a decision had been made to concentrate the program in the immediate future in the American zones of occupation in Europe. Visas, according to the President, would be distributed fairly among all faiths, creeds, and nationalities. He urged that there be no further reduction in immigration quotas by Congress.

NATIONAL PERSONALITIES

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JAMES F. BYRNES

After a long career in government service which included 24 years in Congress, 16 months on the Supreme Court, eight months as Economic Stabilization Director, and nearly two years as Director of the Office of War Mobilization (and Reconversion), James F. Byrnes retired from active duty in April, only to be recalled three months later to the secretaryship of State.

As War Mobilization Director, Byrnes adopted stern measures affecting civilian life at the beginning of the year. By his order all racetracks were closed Jan. 3, 1945, the use of electricity for display lighting purposes was prohibited, railroad transportation and supplies of heating fuel were reduced, and conventions of more than 50 persons, which were unnecessary to the war effort were requested not to meet after Feb. 1. To cope with manpower problems, Brynes favored reexamining agricultural workers' draft deferments and forcing into war work unemployed persons as well as men physically unfit for the armed services. In February 1945, all places of public entertainment, with the exception of restaurants serving only food, were asked by Byrnes to close at midnight in order to conserve fuel, manpower, and transportation. This request encountered little opposition except in New York City, where Mayor LaGuardia extended the curfew one hour past midnight, an act which Byrnes condemned but was powerless to modify.

Meanwhile, Byrnes attended the Big Three meeting early in February at Yalta, then flew to Washington ahead of the presidential party on Feb. 14 to discuss the conference with press representatives and Congressional leaders.

On March 24, 1945, Byrnes tendered his resignation as War Mobilization and Reconversion Director to President Roosevelt. Reminding the President that he had accepted the appointment with the expectation of not remaining to administer the reconversion program, Byrnes said he was convinced that, with victory near, his successor should take office immediately in order to become acquainted with the problems of, and to develop plans for returning the nation to peacetime economy. President Roosevelt accepted the resignation (March 31) with "heartfelt regret." and conveyed to Byrnes the nation's gratitude ". . . that we could fall back on the counsel you were able to give us out of an experience gained in the discharge of so many positions of the highest trust and responsibility." Similar tributes were expressed in Congress, where Senator Barkley, for instance, said that he knew of no one "whose departure from public service would create a greater vacuum."

Conferences in Washington between Byrnes and President Truman shortly after the death of Franklin D. Roosevelt in April led to rumors that he would be offered a post high in the Administration, but it was not until July 1 that the President nominated him for Secretary of State. Without referring the matter to a committee, the Senate confirmed it unanimously (July 2). Upon taking the oath of office, Secretary Byrnes disclaimed any intention of modifying the basic principles underlying United States foreign policy. Furthermore, he welcomed the guidance of Congressional experts and of former Secretaries Hull and Stettinius. No change would be made in the personnel of the State Department, he asserted, until completion of an investigation by the Budget Director. Almost immediately after assuming office, he accompanied President Truman to the Potsdam Conference where he took an active part in the discussions with the chiefs of state and the foreign ministers of Great Britain and Russia.

After returning to the United States Secretary Byrnes participated in the negotiations leading to the Japanese surrender. On Aug. 14, President Truman awarded him the Distinguished Service Medal for his wartime governmental services. In August also, he held conferences in Washington with Premier Soong of China and General de Gaulle of France. By threatening (Aug. 19) not to extend formal recognition to the Bulgarian Government unless elections scheduled there were free and representative of all elements, Secretary Byrnes was able to force a postponement of those elections.

Byrnes' staff in the State Department was revamped before he left to attend the London meeting of the Council of Foreign Ministers in September. The resignations of Under Secretary Grew and four Assistant Secretaries (Acheson, MacLeish, Holmes, and Rockefeller) were accepted, and Dean Acheson was named Under Secretary. To London Byrnes took as one of his advisers John Foster Dulles, foreign affairs consultant to Republican candidate Thomas E. Dewey in the 1944 presidential campaign. Although some progress was made, the conference became deadlocked on certain points; unsolved differences arose over admitting France and China to participation in treaty discussions for the Balkans, over Italian colonies and reparations, and over recognition of the Bulgarian and Rumanian governments. Shortly after arriving home the Secretary of State defended his position at the conference both in a radio address to the nation (Oct. 5) and in a detailed report to the Senate Foreign Relations Committee, whose members approved Byrnes' actions at London.

Nine nations were invited by the Secretary of State to attend a Far Eastern Advisory Commission at Washington (Oct. 23) concerned primarily with Japanese occupation policies. After Russia became the last of the Big Five and the twenty-ninth nation to approve the Charter framed at San Francisco, Byrnes' signing of the document late in October proclaimed the legal existence of the United Nations Organization. The announcement in November by Prime Minister Attlee of Great Britain, Prime Minister King of Canada, and President Truman of a plan to control the atomic bomb, led Byrnes to express the belief that within a few months atomic secrets could be entrusted to a special commission of the UNO.

Charges made by Major-General Patrick J. Hurley, who had recently resigned as Ambassador to China, that State Department diplomats had been sabotaging United States policy in China and Iran, were denied vigorously by Byrnes (Dec. 7) who loyally defended his subordinates. On Dec. 12, the Secretary flew to Moscow, despite adverse weather conditions, for another meeting with Foreign Ministers Bevin and Molotov. The official communique at the conclusion of the conference (Dec. 27) and Secretary Byrnes' radio broadcast to the nation (Dec. 30) disclosed that agreements had been reached on such major issues as the establishment of an atomic energy commission, an allied policy-making commission for Japan, recognition of Bulgaria and Rumania after further democratization of their governments, a five-year trusteeship for Korea, and the calling of a general peace conference. Appointed a delegate to the Assembly of the UNO, Byrnes flew to London on Jan. 7, for the opening session of that body on Jan. 10, 1946.

HARRY HOPKINS

The long political career of Harry Hopkins, close friend and confidant of the late President Roosevelt, ended at least temporarily in July 1945. As special adviser to the President, Hopkins had occupied a unique position. In recent years, much of his time had been devoted to problems connected with foreign affairs and the war, in contrast to his former concern with domestic matters.

In January 1945, Hopkins spoke out in favor of a long occupation of Germany and Japan and for compulsory military training in the United States. Late in the month, he flew to London, Paris, and Rome for conferences with Churchill, Eden, de Gaulle, and Pope Pius XII, then on to Yalta for the Big Three meeting in February. Following his return to the United States, poor health forced him to enter the Mayo Clinic (March 1) where he remained several weeks. After the death of Franklin D. Roosevelt, Hopkins supplied (May 4) President Truman with information on United States foreign policy, especially on the decisions made at Yalta, and discussed with him problems facing the United Nations Conference at San Francisco. On May 24, the President dispatched him to Moscow for special consultations with Marshal Stalin and other Soviet officials. During this mission Hopkins was credited with having persuaded Russia to withdraw her contention that the veto power of the United Nations Security Council should include the right of each permanent member to prohibit *discussion* of international issues or situations which might threaten world peace.

Illness and imperative need for rest were the causes stated for Hopkins' resignation early in July. At that time President Truman highly praised Hopkins for his loyal service and two months later (Sept. 5) awarded him the Distinguished Service Medal for his significant role in the Second World War. Meanwhile, Harry Hopkins accepted and entered upon the duties (Sept. 6) of a new position—impartial chairman of the New York City women's coat and suit industry. Thereafter his health failed rapidly, and he died in New York on Jan. 29, 1946. His death brought messages of appreciation from many parts of the world for his liaison service between President Roosevelt and President Truman, and the leaders of foreign states.

EDWARD R. STETTINIUS, JR.

Secretary of State in 1945 for only six months and a member of the State Department for less than three years, Edward R. Stettinius, Jr., nevertheless, directed United States foreign affairs with noteworthy skill during a period of significant advance toward world peace and security. Within a short interval he successfully undertook heavy responsibilities at the Yalta, Mexico City, and San Francisco conferences.

Early in January 1945, Stettinius announced that the United States would continue to recognize the Polish government in exile rather than the newly formed provisional "Lublin Government." In line with this policy and with the declaration made at the Yalta conference in February, the Secretary upheld (April 12) the exclusion of Poland from the United Nations Conference at San Francisco because of the failure to reorganize its government on a more democratic basis. In January also, Stettinius praised Turkey's breaking of diplomatic relations with Japan, supported the then Foreign Secretary Eden's suggestion for regular conferences of the Big Three, and approved of the proposed full employment bill with the reservation that our foreign trade should not be lessened by the "stimulation of uneconomic production" or by the introduction of "added rigidities into our economy."

After attending the Yalta conference the Secretary of State visited Moscow (Feb. 13-14), and then flew to Mexico City for the Inter-American Conferences on Problems of War and Peace. To the delegates of the latter conference Stettinius said (Feb. 22) that the good-neighbor policy and inter-American cooperation were considered by the United States to be "indispensable to the building, after victory, of a peaceful and democratic world order." The basic objectives of United States foreign policy described by Stettinius may be summarized thus: (1) final defeat of the aggressor nations; (2) complete demilitarization of Germany and Japan and permanent obliteration of their capacity to wage war; (3) the "right of every nation to develop free institutions according to its own desires"; (4) creation of an international organization to insure world peace; (5) attainment of a world in which "all men in all the lands may live out their lives in freedom from fear and want." The American Republics were assured of United States help in reducing the economic dislocations of war, promoting trade, stabilizing rates of exchange, and raising the standard of living.

President Roosevelt, in February 1945, appointed Secretary Stettinius chairman of the United States delegation to the United Nations Conference at San Francisco. When the Secretary announced (March 5) at Mexico City the issuance of invitations to the San Francisco Conference, he both explained and defended the formerly unpublished decision reached at Yalta on the voting procedure for the Security Council. After returning to Washington, he stated (March 15) that the United States would request opening the conference to the press and to the public. Moreover, he expressed (March 17) the hope that the principle of free access to, and exchange of information on an international basis would be incorporated in the United Nations Charter.

In a major address before the Council on Foreign Relations at Chicago, Secretary Stettinius stressed (April 4) that "no machinery for combined action to prevent or suppress aggression will work for any length of time in a world in which the causes of war, particularly the economic causes, are permitted to poison relations between countries." To help alleviate these factors, the United States, he said, favored lower tariffs, expanded investments abroad, increased foreign loans, settlement of lend-lease obligations in such a way as not to hinder trade, relief measures for liberated countries, prevention of cartels, and elimination of chronic world-wide surpluses of certain staples.

Two conditions essential for the establishment of a successful world organization were stipulated by Stettinius when he first addressed (April 26) the Conference at San Francisco: first, unanimous agreement and action by all leading military and industrial powers; second, voluntary cooperation of all peaceful nations to promote justice, human rights, and economic and social advancement. He further advised that in their deliberations the delegates, while striving to construct the best possible charter, should "not sacrifice approval to perfection" and should remember that their work "can be improved upon with time."

Contrary to expectations, opposition by the Russian delegation prevented the election of Stettinius as permanent president of the San Francisco Conference; instead, a compromise was adopted by which the presidency was rotated among the chief delegates of the four sponsoring powers. However, as permanent chairman of the important steering and executive committees, the Secretary of State wielded great authority. Although some American commentators attacked him both before and during the conference, he won widespread acclaim in the press and from most of the delegates for his tactful yet firm and efficient conduct of meetings and his effective leadership of the United States representatives. On several significant questions, such as the admittance or exclusion of Poland, the adoption of the clauses on human rights, regional security arrangements, and trusteeships, and the strengthening of the Economic and Social Council, Stettinius' influence was a major factor in the decisions reached. In recognition of his services, honorary degrees were awarded him by the University of California (May 4) and Columbia University (June 5, in absentia).

Midway in the conference the Secretary of State flew (May 24) to Washington to consult with President Truman. A few days later he reported (May 28) by radio to the nation on the achievements of the Conference to that date and asserted that the delegates would succeed in "writing a strong and democratic charter."

Stettinius' long-rumored resignation as Secretary of State was announced June 27, one day after the conclusion of the conference. At the same time President Truman named him United States representative on the Security Council of the United Nations Organization. Senate action on the nomination was postponed pending ratification of the Charter. In the meantime Stettinius appeared (July 10) before the Senate Foreign Relations committee to urge the Charter's approval. In August, the President appointed him United States representative (with ambassadorial rank) to the Preparatory Commission of the United Nations Organization.

Arriving in London (Sept. 1) to meet with the Executive Committee of the Preparatory Commission, he tried to speed the work so that the United Nations Organization could begin operations with as little delay as possible. Fitting tribute to Stettinius' accomplishments was paid in December by President Truman in naming him one of the five United States delegates to the Assembly as well as United States member on the Security Council of the United Nations Organization.

FRED M. VINSON

No political figure during 1945 occupied as many high-ranking offices in the United States Government as Fred M. Vinson. Formerly a member of the House of Representatives, Associate Justice of the Court of Appeals for the District of Columbia, and Chief Judge of the Emergency Court of Appeals, Vinson had succeeded James Brynes as Director of Economic Stabilization in 1943 and was still in that post at the beginning of 1945. Following the separation of the Federal Loan Agency functions from the Commerce Department, President Roosevelt nominated (March 6) him to be Federal Loan Administrator. When Brynes retired early in April as Director of War Mobilization and Reconversion, President Roosevelt, in his last major appointment, again turned to Vinson to fill an important vacancy. Finally, President Truman named (July 16) him Secretary of the Treasury. Both in Congress and in the press the selection of Vinson for these positions received widespread approval.

A primary aim of Vinson's policy throughout the year was to "hold the line" against inflation. As Director of Economic Stabilization, he forbade (Feb. 12) the making of so-called "fringe adjustments" in wages and salaries if they adversely affected the price stabilization program, and in March he set up specific, narrow limits within which such increases could be granted. In a report to President Truman he advocated (May 9) maintaining wage controls during reconversion, but approved increases for wage losses caused by the shorter work-week. Although he ordered (May 18) an additional subsidy for beef processors, retail prices were held at a firm level.

Vinson's two reports on reconversion (May and July) stressed the need for a gradual transition to civilian production. To cushion the economic shock however, he favored somewhat lower taxes, greater unemployment compensation, and higher minimum wages. When he recommended (Oct. 1) a cut of about $5,000,000,000 in Federal taxes for 1946—the first Secretary of the Treasury in 16 years to ask for a reduction in revenues—Vinson stated that the "only real solution of our tax problems and our debt problems is a high level of production, employment, and national income."

Other measures endorsed by Vinson in 1945 included the Bretton Woods monetary and banking plans, extension of the Price Control Act, expansion of the Trade Agreements Act, and the full employment bill. After victory in Europe he removed (May 9) the midnight curfew on amusements, and on July 12 he ordered an end to the drafting of physically unfit men over 26 years of age who left essential jobs. In a Memorial Day address at Arlington National Cemetery, he pleaded for the prevention of wars and depressions, both of which he described as "man-made institutions." During the fall he helped negotiate a loan of more than $4,000,000,000 to Great Britain. On Dec. 28, Vinson signed for the United States the document which formally established the international bank and monetary fund projected at Bretton Woods.

ARTHUR H. VANDENBERG

The impact on United States foreign affairs during 1945 of Arthur H. Vandenberg, Senator from Michigan, was of the first magnitude. A member of the Senate Foreign Relations Committee, Vandenberg participated effectively in the framing, ratification, and implementation of the United Nations Charter.

The key to Senator Vandenberg's thinking appeared in his now famous "collective security" address in the Senate on Jan. 10, 1945, an important milestone in America's progress toward international cooperation. While stressing the indispensability of unity among the United Nations, Vandenberg believed that fear of international dissension should not prevent public discussion of the issues peace would bring. Lack of candor by the United States had resulted in confusion rather than unity. In the Senator's opinion the United States should state clearly its stand on four points: dedication to the principles of the Atlantic Charter; acceptance of joint rather than unilateral settlement of international problems; subjection of all peace decisions to revision by the world organization; and proposal of better terms to the Axis for a quicker unconditional surrender.

In elaborating these primary aims, Senator Vandenberg greatly regretted the "shocking results" of President Roosevelt's dismissal of the Atlantic Charter as a "mere collection of fragmentary notes," an act which had "jarred America to its very hearthstones." These basic pledges, said Vandenberg, which "sleep with our martyred dead," must now be reaffirmed. Since no nation could any longer "immunize itself by its own exclusive action," he held that America must cooperate to maintain world order and peace. He attributed most of our contemporary friction with other nations to the "fear of reborn German aggression." To solve this difficulty Vandenberg proposed immediate adoption by the major powers of an agreement to keep Germany and Japan permanently demilitarized under which the President could act instantly without reference to Congress.

The effect of Senator Vandenberg's speech was momentous. Except for extreme isolationists most Americans were pleased. However, a Moscow publication attacked Vandenberg as an "imperialist." President Roosevelt called it a good address, and it possibly was a factor in his choosing Vandenberg in February as a delegate to the United Nations Conference. Before announcing (March 6) his acceptance of the assignment, the Senator noted that the President had assured him of freedom of action at the Conference. Later he suggested (March 18) a number of amendments to the Dumbarton Oaks plan, and he opposed (March 29) giving both the United States and Russia three votes in the Assembly.

In March 1945, Senator Vandenberg took a stand on certain other matters concerned with foreign affairs. He called attention in the Senate (March 8) to the vital task of creating a new Polish government that would be truly representative of all Polish interests and parties. Although he approved the bill to extend lend-lease, he insisted (April 9) that aid under the act should stop when fighting ceases, and that goods and services provided thereby must not be used for post-war relief or reconstruction. The United States should do its part in helping "to reconstruct a healthy, happy world," he said, but he thought that "we are neither big enough nor rich enough to become permanent almoner to the whole earth." Therefore, he asked the Administration to furnish an overall estimate of the external post-war obligations of the United States.

Upon leaving (April 20) to attend the San Francisco Conference, Vandenberg stated that, while he had no illusions about attaining the "millennium," he did have faith in the success of the venture. Recognized as one of the leading delegates at the Conference, he was instrumental in having the concepts of justice and international law included in the Charter's objectives, and he served prominently in the negotiations for a suitable formula on regional agreements.

After more than two months absence Vandenberg made (June 29) a preliminary report to the Senate advocating ratification of the United Nations Charter because the "alternative is physical and moral chaos in many weary places of the earth." He was convinced that not force but "the pacific settlement of disputes before they ever reach a fighting stage" was the main potential value of the new organization. Henceforth all issues would have to proceed through a regular course of "pacific routines" which would "stop almost every dispute short of the necessity for the consideration either of sanctions or of force." Moreover, justice, human rights, and fundamental freedoms would be guaranteed a hearing "under the healthiest possible auspices available."

In the committee hearings (July 11) and during the Senate debate (July 23-28) on the Charter, Vandenberg staunchly reemphasized his previously expressed views. In particular, he pointed out that, by joining the United Nations Organization, Congress would not abdicate its constitutional power to declare war, nor would it lack ultimate control over the American delegate on the Security Council.

Following Senate approval of the Charter (July 28), Vandenberg wrote (Aug. 5) to Secretary of State Byrnes advocating full presidential control of the United States forces assigned to maintain peace, and proposing that the job of policing the Western Hemisphere be turned over exclusively to the American Republics. Later he played an important role in getting enabling legislation passed to make United States participation in the United Nations Organization effective.

Senator Vandenberg proposed (Sept. 6) a resolution for the creation of a joint committee to deal with the development, control, and use of atomic energy. Although this measure was approved (Sept. 27) unanimously by the Senate, the House did not concur. The Senate then established its own Special Committee on Atomic Energy to the membership of which Vandenberg was appointed (Oct. 26). After the communique issued (Dec. 27) by the Moscow foreign ministers conference revealed that an atomic energy commission would be established, it was reported that Senator Vandenberg personally secured from President Truman assurances that no atomic bomb secrets would be disclosed until complete guarantees of security had been obtained.

Describing the Pan-American Union as "the greatest and the noblest regional arrangement on earth," the Michigan Senator spoke (Oct. 22) forcefully on the indispensability of maintaining sympathetic relationships and mutual engagements with the Latin-American Republics. Even more effective was his plea (Nov. 15) for reducing international friction by raising "the iron curtain of secrecy." Despite his belief in full freedom of international communications, however, Vandenberg successfully asked the Senate to defeat a proposal limiting American participation in foreign relief under UNRRA only to those countries which would allow free access to our press representatives. The climax of Senator Vandenberg's efforts for international cooperation came with his appointment by President Truman in December to be one of the United States representatives to the United Nations Assembly.

Other issues besides international security occupied Vandenberg's attention in the Senate. He opposed the national service and the full employment bills but supported (July 19 and 21) the Bretton Woods international monetary and banking plans and the Hot Springs international food organization. His proposal (July 30) to Secretary of Labor Schwellenbach for an industrial relations parley led to the calling of the labor-management conference in October. Although Senator Vandenberg favored higher unemployment benefits, he expressed dislike (Sept. 19) of the Administration-sponsored measure providing payments of $25 a week for 26 weeks because of objections to the practical effectiveness of the plan. The Washington, D.C. transit strike induced him to demand (Nov. 9) that a way be found to prevent strikes which violate collective bargaining contracts.

Indicative of the increased national stature attained by Senator Vandenberg in 1945 were the results of a poll conducted among party workers by the official Republican magazine which disclosed that, since 1943, he had registered the largest gain (40 per cent) in prestige and popularity of all the party leaders.

HENRY A. WALLACE

The nomination (Jan. 20, 1945) of Henry A. Wallace to be Secretary of Commerce precipitated an extensive political controversy in Congress. Protests were particularly vehement about a letter to the incumbent Secretary of Commerce, Jesse Jones, from President Roosevelt, requesting Jones to relinquish his post in favor of Wallace. According to President Roosevelt, Wallace deserved "almost any service which he believes he can satisfactorily perform" because of his active help in the campaign of 1944.

Wallace was characterized in Congress as an "impractical idealist" and a "starry-eyed dreamer" who lacked the business ability and economic philosophy necessary to manage properly the vast financial authority vested in the office. Not until a compromise measure severed the Federal Loan Agency from the control of the Secretary of Commerce did the Senate on March 1 confirm (56-32) the nomination.

In the meantime Wallace gained some political prestige by his outspoken self-defense. To a Senate committee he charged (Jan. 26) that the real issue behind the movement to strip the Commerce Department of its lending powers was not his personal deficiency in experience or competence, but whether or not the powers "are to be used only to help big business or . . . little business and to help carry out the President's commitment of 60,000,000 jobs." In New York City he stated (Jan. 30) that there were two goals in his fight: first, "jobs for all after the post-war boom is over"; second, to make the common man "better off in time of peace than he was in time of war."

As Secretary of Commerce Wallace testified in favor of extending the President's reciprocal tariff powers, urged legislation for tax adjustments, and backed the full employment bill. However, he opposed the establishment by war veterans of more than 500,000 to 700,000 new small business enterprises. During the fall he began a partial reorganization of the Commerce Department, recommended that a labor-supply census be taken every five years, helped Secretary of Labor Schwellenbach plan the labor-management conference, and contended that the automobile industry could increase basic wages 25 per cent by 1947 without raising prices and still continue to earn substantial profits. According to an unconfirmed report Wallace advocated revealing the atomic bomb secrets to Russia immediately.

In his book, *Sixty Million Jobs* (published in August), Wallace set forth the thesis that the Federal Government must assume responsibility for full, continuous employment whenever private enterprise, after stimulation and encouragement by the Government, fails to do so; government economic planning through a National Employment and Production Budget would be used to maintain national production at $200,000,000,000 a year and employment at 60,000,000 jobs. In line with this, he endorsed (Oct. 30) the Murray-Wagner full employment bill because it would establish confidence in the future, provide better coordination of government agencies, and set up simple but effective machinery and procedures to put the program into operation.

On June 4 the Churchman's Award for 1945 was bestowed on Wallace. As recipient of this honor he was described as "a man of vision who has dared to speak . . . against the privilege of the few and for the privilege of the many."

LEWIS B. SCHWELLENBACH

Former Senator Lewis B. Schwellenbach, since 1941 a Judge of the United States District Court for eastern Washington, reentered national politics in May when President Truman named him Secretary of Labor. Apparently loath to give up the bench, Schwellenbach reportedly consented to the Cabinet post only after considerable persuasion by the President. Leaders of both political parties and of organized labor in general were satisfied with the choice, and the Senate approved it with little opposition.

Soon after commencing his new duties (July 1) Secretary Schwellenbach broadcast to the nation his views on handling future labor relations. He emphasized that, because of its cost to all concerned, industrial strife must be eliminated. While both government and industry should try to minimize the workers' fear of unemployment, he insisted that employees as well as employers must recognize and accept their responsibilities. Schwellenbach cautioned that, although men "are entitled to the right to work," the "most powerful weapon a labor union has is the good will and the sympathetic support of the general public." It was his wish that labor respect the no-strike pledge and that management refrain from provoking labor in violation of that pledge.

Under Schwellenbach's direction, the Labor Department was partially reorganized (Sept. 18). Two new special assistants to the Secretary were named, three previously external labor agencies (War Labor Board, War Manpower Commission, and United States Employment Service) were incorporated into the Department, and the Conciliation Service was made the chief agency for settling labor disputes. To head the expanded Conciliation Service, Schwellenbach selected Edgar L. Warren, a former WLB regional director.

Following the termination of hostilities with Japan, several major labor contests arose, in few of which Secretary Schwellenbach and his cohorts were able to obtain satisfactory adjustments. The September oil refinery strike was ended only by government seizure of the plants after Schwellenbach's compromise proposal was rejected. A coal strike of four weeks duration ceased only because of a voluntary postponement by John L. Lewis. Likewise, mediation attempts by Schwellenbach and his aides in the General Motors Corporation strike (Nov. 21) met little success.

Meanwhile, the long-heralded management-labor conference, which was held during October and November in Washington under Administration sponsorship, failed to provide an adequate formula for work stoppages. In December, the Secretary of Labor backed President Truman's program for the establishment of fact-finding bodies to act in major labor disputes. By executive order such investigating boards were provided late in the month for the oil, steel, and General Motors disputes and were vested by Schwellenbach with authority to recommend wage increases based on inquiries of the employers' ability to pay.

HAROLD E. STASSEN

Although Capt. Harold E. Stassen, youthful (37) former Governor of Minnesota, was on active duty with the Navy for more than half of 1945, he received public attention through his work as a delegate to the United Nations Conference at San Francisco and from his speeches and writings.

Named a delegate to the San Francisco Conference by President Roosevelt (Feb. 13), Stassen immediately returned to the United States on temporary leave after spending nearly two years on Admiral Halsey's staff in the Pacific. At Washington he was awarded the Legion of Merit. He discussed the duties of his new post with Republican congressional leaders and with Governor Dewey of New York, and then exchanged views on international affairs with a number of faculty experts at Harvard University. His decision to accept the assignment was based on his belief that, irrespective of what effect it might have on his aspirations for the presidency, it was as much his duty "to work for a successful peace as it is to win the war."

Stassen voiced his opinions on world affairs in a radio address from Minneapolis (March 7), where he set forth the following "seven cardinal points" for future United States foreign policy: (1) join with our allies to build a permanent United Nations Organization based on justice and law and insured by force; (2) delegate a limited part of our national sovereignty to the United Nations Organization; (3) recognize that the welfare, peace, and happiness of America is necessarily linked to the status of the whole world; (4) use our productive capacity and wealth to advance standards of living throughout the world; (5) believe in freedom of information through press, radio, school, and forum as vital to world peace and progress; (6) strip aggressor nations of all means to make war; (7) remain a democracy characterized by free citizens, private capital, and individual enterprise, yet strive to improve its functioning and not prohibit study of other forms of government. Major goals for the proposed United Nations Organization, according to Stassen, should include the power of making basic, world-wide laws to permit the enactment at a future date of a "fundamental code of human rights," and the establishment of an international court with worldwide jurisdiction, a police force to maintain order and justice, and an effective and equitable system of trusteeships.

At the San Francisco Conference, Stassen played a prominent role. To help him understand and better represent the serviceman's viewpoint, he selected two wounded fighting men—a soldier and a marine—as his aides at the Conference, where he served on the subcommittee on trusteeships, defended the plan for the Security Council against the criticisms of small nations, and upheld the stand of the big powers on colonies. Shortly after the sessions at San Francisco were concluded, he appeared before the annual Governor's Conference at Mackinac (July 1) and in the nation's capital (July 5) to discuss the terms of the United Nations Charter and to advocate its immediate ratification.

Admitting that the charter was a "curious blend of idealism and realism," Stassen emphasized at Washington that its basic greatness lay not so much in specific provisions as in its capacity for growth and adjustment to future needs, and in the fact that methods were established "for peaceful change with justice and without war." He singled out for praise the Economic and Social Council as an "instrumentality for a continuing, constructive approach to the underlying causes of economic warfare and injustice," and he liked the responsibility imposed on nations holding trusteeships to make public reports on their stewardships. The General Assembly, he believed, would become the "world forum of the future."

After he rejoined the Pacific fleet for active duty in July, Captain Stassen participated in the Japanese surrender formalities and reported on a survey of Japanese prison camps. He then returned to Washington where, following a short period of service attached to the office of the

Secretary of Navy, he was honorably discharged in November. At that time Admiral Halsey described Stassen as a great naval officer, a great governor, and a man capable of performing the duties of any position the people entrusted to him.

Even prior to assuming civilian status, Stassen spoke out on current issues, and during the remaining weeks of the year he delivered several major addresses. At the height of the atomic bomb controversy, he proposed (Nov. 8) that world peace be maintained by a United Nations air force consisting of five bomber and ten fighter squadrons based at suitable points, each bomber squadron to be equipped with five atomic bombs furnished by the United States. Henceforth, manufacture of atomic weapons would be outlawed but atomic research would be permitted by registered scientists. In a speech before the National Association of Manufacturers (Dec. 7), Stassen called for a "real post-war economic conference" of government, labor, business, and agriculture, with the aim of projecting a "ten-year plan" in which all elements of society would unite "to champion and encourage and develop the basic American system."

To relieve the acute housing shortage, Stassen urged (Dec. 12) a number of measures, including (among others) the appointment of a national housing expediter, the release from the armed services of all skilled tradesmen not needed for immediate military purposes, the training of construction workers by an expanded apprentice program, the leasing for temporary occupancy of unused Army and Navy barracks, and the revision of city building ordinances which unnecessarily restrict home construction.

On Dec. 14, Stassen expressed the opinion that the United States should demand immediate cessation of armed intervention by the British and Dutch in Java and that the problem should be submitted to the United Nations Assembly in January for study and recommendation. Speaking to the American Bar Association at Cincinnati (Dec. 19), he asked the assembled lawyers to search for new answers to the needs of government and proposed that a committee of the Bar Association visit Russia and other foreign countries with the ultimate goal of establishing a basic international code of rights.

ROBERT E. HANNEGAN

Robert E. Hannegan, chairman of the Democratic National Committee throughout 1945 and Postmaster-General of the United States since July 1, announced in January 1945 that plans were already being made for the next Congressional elections. On numerous occasions Hannegan stressed the importance of a Democratic victory in 1946. At Rochester (March 17) he contended that the 1944 election results made it obligatory for all those who voted for Roosevelt to support the Administration's program and to "follow through" by assuring a Democratic majority in Congress.

President Truman's nomination (May 3) of Hannegan to be Postmaster-General was vigorously opposed by Senator Donnell of Missouri, who objected to the fact that the members of the Senate Committee on Post Offices had been merely "polled" by the chairman (McKellar) without calling a formal meeting, and who tried at length but in vain to have the nomination recommitted to the committee for hearing on Hannegan's fitness. Donnell questioned the appointment on such grounds as Hannegan's retention of the chairmanship of the Democratic National Committee, the vast patronage at the disposal of the Postmaster-General, and particularly a series of incidents in Missouri political life and elections from 1934 through 1941, but the Senate confirmed (May 8) the nomination with only two dissenting votes.

At a testimonial dinner in his honor following his confirmation, Hannegan told Democratic Congressmen that their party members would be given preference in appointments to Federal jobs. This "return to the spoils system" was roundly criticized by Mayor LaGuardia and others. On July 4 at Gainesville, Ga., the new Postmaster-

General praised the "splendid manner in which President Truman has measured up to his unparalleled responsibilities," emphasized the need for post-war cooperation through the United Nations, and called for a "job for every man and woman who wants to work."

After victory in the Far East, Republican Congressmen were warned (Sept. 17) by Hannegan that with the war over they could no longer "conceal their final objectives behind platitudes or counsels of perfection," nor could they "get by with endorsements in principle and amendments that would cancel out the principle they have endorsed." In St. Louis, Hannegan assured (Sept. 18) businessmen that the Truman Administration would assist them "to the limit consistent with good government in time of peace" through such means as easing regulations and lowering taxes. At French Lick, Ind. he charged (Nov. 17) that Republican leaders in Congress were "still voicing defeatism," trying to overthrow the social and economic advances made under the New Deal, and attempting to "smear" Franklin D. Roosevelt in the Pearl Harbor investigation.

THOMAS E. DEWEY

Defeated as Republican candidate for President in 1944, Thomas E. Dewey, Governor of New York, devoted the year 1945 mainly to the affairs of his own state. In his January 1945 message to the New York legislature, he recommended such matters as reform and extension of workmen's compensation insurance, greater benefits for the unemployed, and additional state funds for public housing projects. Later he demanded passage without amendment of a bill outlawing discrimination by employers because of race, religion, color, or national origin, a bill which became law by his signature in March. The Civil Service Reform Association, in May, praised the Governor's record in regard to laws affecting New York state administrative organization and services.

Speaking to Republicans assembled at Washington for the annual Lincoln Day dinner (Feb. 8, 1945), Governor Dewey emphasized American unity during war, demanded that the United States "take a full, responsible part in the establishment of collective security among nations," pledged Republican support to President Roosevelt's efforts at the Yalta Conference, yet insisted that the "decisions to be made shall be in harmony with our American ideals of liberty and justice" and that the "actions to be taken shall not be concealed and shall not be devious." Late in February he discussed with Commander Stassen the principles by which the latter would be guided as a delegate to the United Nations Conference at San Francisco.

In June, Dewey said that if world economic warfare were to be prevented and lasting peace preserved, existing curbs on international trade must be abolished. For the United States he specifically urged the lowering of tariffs, cancellation of debts of the First World War, repeal of the Johnson Act, settlement of lend-lease obligations in such a way as to "promote mutually advantageous economic relations," joining the international bank and international monetary fund proposed at Bretton Woods, and long-term stabilization of the dollar-sterling exchange rate.

Governor Dewey played a prominent role at two gatherings of state chief executives. The first (June 19) was a meeting of 12 northern state governors to discuss food shortages. At the second, the 37th annual Governors' Conference at Mackinac Island, he asked for quick ratification by the Senate of the recently framed United Nations Charter, and he stressed the necessity of states cooperating with each other to improve their governmental structure and administrative efficiency.

Local politics claimed Dewey's attention to some extent during the summer and early fall. In late August, he made a five-day tour through the northern counties of New York in behalf of Republican candidates. In the New York City Mayoralty race, Governor Dewey supported Judge Jonah J. Goldstein, who suffered a decisive defeat in the election. This defeat, coupled with the results of a poll taken by a Republican organ among more than 4,000 party workers which showed that Dewey's decrease in popularity was greatest of all the party leaders, may not lack political significance.

In September, Governor Dewey exchanged telegrams with President Truman over the St. Lawrence River seaway project. The Governor, fearing that the Administration was about to sponsor a measure providing for the seaway only, threatened (Sept. 19) to oppose the entire project unless it also included the development of waterpower resources. President Truman immediately assured Dewey that he was "enthusiastically in favor not only of the St. Lawrence waterway but also of the water power on the river." Furthermore, the President voiced the opinion that, once constructed, the power facilities should be turned over to New York State.

After it was disclosed in September that Dewey knew about the United States breaking Japanese military and diplomatic codes before December 1941, but had refrained from using this information during the 1944 campaign because of an urgent request for secrecy from General George C. Marshall, a political controversy ensued in which the Governor took no part. Repercussions from this incident cropped up during the congressional committee investigation of the Pearl Harbor disaster when Senator Lucas demanded (Dec. 15) that inquiries be made as to how Dewey had first learned of the American interception of Japanese code messages, but no action was taken. In the meantime, Governor Dewey's appearance before a United States District Court as the representative of nine northern states resulted in an injunction (Dec. 21) restraining the United States Interstate Commerce Commission from enforcing its May 15 decision ordering differential freight rate adjustments between the North and the South.

ELLIS G. ARNALL

Few state governors received more national publicity during 1945 than Ellis G. Arnall, the young chief executive of Georgia. Governor Arnall continued with vigor and success his efforts for governmental reform which, during the previous two years, had resulted in lowering the legal voting age to 18, modernizing budgetary procedures, protecting educational institutions against political interference, and reforming the prison system.

When the Georgia legislature failed to abolish the poll tax at his request, Governor Arnall threatened to do so by executive order, thereby forcing the legislature to adopt the measure. In March, he argued in person before the United States Supreme Court for permission to file suit against 20 northern railroads for anti-trust law violations, charging them with conspiracy to fix discriminatory freight rates against Georgia (and other southern) shippers. The Court voted (5 to 4) to hear the case. Further success came in May when the Interstate Commerce Commission ordered southern freight rates decreased ten per cent and northern rates increased by the same amount.

During the first week in July Arnall attended the 37th annual Governors' Conference at Mackinac Island, where he served on the resolutions committee and was named to the executive committee of the organization. The crowning achievement of his gubernatorial career came when the people of Georgia approved (Aug. 7) a new, progressive state constitution, framed earlier by a Commission which he headed. Rumors circulated (Sept. 4) that President Truman would appoint Arnall Solicitor General of the United States, but they proved false.

Insight of Governor Arnall's political philosophy can be found in his description of the American way of life—or freedom—as the "right of the individual to lead his own life in his own way, free of the threat of interference so long as he interferes with no other man's freedom." For years Arnall has expressed concern about the relative economic status of the

South and the North. With aggressive action to end the sources of southern poverty, which he believes to be the fundamental cause of all the ills affecting his area, the Governor predicted in July that the Southern States could look forward to a great future.

THE YEAR IN CONGRESS

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ORGANIZATION AND COMPOSITION

The first session of the Seventy-Ninth Congress convened Jan. 3, 1945. The Senate contained 57 Democrats, 38 Republicans, and one Progressive, a line-up which showed little change from the previous session. The House, with 243 Democrats, 190 Republicans, one Progressive, and one American-Laborite, showed a Democratic increase of 21 over the beginning of the Seventy-Eighth Congress. Senator Alben W. Barkley was re-elected majority leader and Senator Kenneth McKellar became president *pro tem* of the Senate. In the House, Speaker Sam Rayburn was re-elected. John W. McCormack and Joseph W. Martin, Jr. served as majority and minority leaders, respectively.

GENERAL

Congress was at once confronted with a variety of problems, some domestic, others connected with the conduct of the war. Matters of international security and cooperation were also conspicuous. In his message to Congress on the state of the union, President Roosevelt especially urged a national service act, more effective use of men classified as "4-F," induction of nurses into the armed forces, and universal military training after the war. He suggested that tax modifications be planned for the end of the war in Europe, to encourage capital to invest in new enterprises and to provide jobs; but he thought that there should be no major tax revision until after the war should have ended on all fronts. He also restated his "American Economic Bill of Rights" in plans for post-war economy and made a strong appeal for world unity. The President's budget message on Jan. 9 showed the same combination of war problems with the possibility of peacetime revision of appropriations and controls. International responsibilities were again emphasized in his Bretton Woods message of Feb. 12.

COURSE OF LEGISLATION

Congress had a brief recess at Easter time. The death of President Roosevelt on April 12, although a shock to Congress as to the nation, did not materially change the course of legislation. The end of the war in Europe brought some modification of wartime controls, as for instance the change in the excess profits tax. Congress planned for a summer vacation, the first of any length in several years. The House recessed July 21, intending to return Oct. 8. The Senate remained in session until Aug. 1, to complete ratification of the United Charter.

The principal measures of this first part of the year included extension of the Trade Agreements Act, approval of the Bretton Woods agreements, expansion of the lending authority of the Export-Import Bank, approval of membership in the United Nations Food and Agricultural Organization, extension of Lend Lease, and membership in the United Nations Organization, a most important body of legislation in the international field. Domestic measures for the same period included extension of the draft law, increase of the national debt limit, continuation of price control, salary increases for postal and other Federal employees, and approximately

$59,000,000,000 of appropriations. Quite a large part of the domestic program was left for action in the fall.

The end of hostilities on Aug. 14 shortened the summer recess, and Congress reconvened on Sept. 5, to face a period of reconstruction. The next day President Truman sent a message with a 21-point legislative program, dealing partly with the end of the war and partly with long range policies. The fall months were marked by intensive discussion of economic measures and by investigations, notably those on Pearl Harbor and on atomic energy control. President Truman sent a number of messages. Among the most important were those dealing with atomic energy control, universal military training, and the merger of the armed services.

Major bills passed in this period provided for participation in the UNO, appropriated new money for UNRRA, cut income taxes and repealed the excess profits tax, revised the "G I Bill of Rights," and authorized government reorganization. There was also a measure cutting current and past unused appropriations by $52,000,000,000, but this was vetoed after the close of the session. In all, some 290 public laws were passed during the year. The session ended on Dec. 21, 1945.

The year's achievements in international relations were notable. There were many domestic matters awaiting action in the second session which opened Jan. 14, 1946. Among these were universal military training, merger of the armed services, salary increases for members of Congress, labor legislation, revision of social security, "full employment" measures, establishment of a permanent FEPC, and domestic control over atomic energy. Approval of the $4,400,000,000 loan to Britain was also pending.

AGRICULTURE

Legislation passed early in the year appropriated $6,784,000 for completion of an agricultural census. The Agricultural Adjustment and Soil Conservation Acts were amended to protect the acreage allotments of cotton, wheat, and peanut growers who had shifted to war crops and so were not eligible for benefits under the original acts. Appropriations were authorized for distribution to states for more county-extension work. The sums were $4,500,000 for 1946, $8,500,000 for 1947, and $12,500,000 for 1948. The distribution will be made in the same manner as in the Smith-Lever Act. A measure was also passed revising the Farm Credit system to make it more efficient and simplify the procedure for loans.

AIRCRAFT

The provisions of the National Motor Vehicle Theft Act were extended to include the transportation of stolen aircraft in interstate or foreign commerce.

APPOINTMENTS

Many new appointments were made during the year. On March 1, Henry A. Wallace was confirmed as Secretary of Commerce after the Federal Loan Agency had been made independent of the Department of Commerce. Other cabinet appointments were those of Tom Clark as Attorney-General, Robert E. Hannegan as Postmaster General, Lewis B. Schwellenbach as Secretary of Labor, Clinton Anderson as Secretary of Agriculture, James F. Byrnes as Secretary of State, Fred M. Vinson as Secretary of the Treasury, and Robert P. Patterson as Secretary of War. Vinson had recently been approved as Federal Loan Administrator and in April as Director of War Mobilization and Reconversion. John W. Snyder succeeded him first as Federal Loan Administrator and later as Director of War Mobilization and Reconversion.

The Senate rejected Aubrey Williams as Rural Electrification Administrator. Claude R. Wickard was later confirmed for this post. David E. Lilienthal's reappointment as chairman of the Tennessee Valley Authority was confirmed in May. In the Army nine full generals were confirmed in March, giving the Army its greatest number of full generals. Most notable of the Army and Navy confirmations of the year were those of Dwight D. Eisenhower as Army Chief of Staff and Chester W. Nimitz as Chief of Naval Operations. Harold H. Burton, formerly Senator from Ohio, was unanimously confirmed as Associate Justice of the Supreme Court on Sept. 19.

At the session's close the Senate confirmed the delegation to the United Nations Organization, Edward R. Stettinius, Jr., Senator Tom Connally, Senator Arthur H. Vandenberg and Mrs. Eleanor Roosevelt. The fifth delegate was the Secretary of State, whose name did not require confirmation. Stettinius was to serve as representative on the UNO Council as well as delegate to the General Assembly. Confirmed as alternates were Representatives Sol Bloom and Charles A. Eaton, Frank C. Walker, former postmaster general, John Foster Dulles, and John G. Townsend, former senator from Delaware.

APPROPRIATIONS

President Roosevelt on Jan. 9, 1945 sent to Congress the budget for the fiscal year, 1946. In his message he emphasized the need of planning not only for an all-out war program but for one which would provide a full-employment peace economy. He estimated that $70,000,000,000 would be needed for war purposes in the fiscal year, but made it clear that unobligated balances of war appropriations no longer needed would be placed in reserve and reported to Congress for action. For other than war purposes he estimated that $13,000,000,000 would be needed. This represented an estimated drop of $17,000,000,000 from the amount appropriated for the fiscal year, 1945. A revised estimate as of July, 1945, still showed the war expenditures as $70,000,0000,000 and placed others at $15,288,000,000.

In September President Truman asked Congress to rescind $3,500,000.000 of appropriations and contract authorizations to 20 war agencies. It was clear, however, that some changes would not appear until the budget for the fiscal year, 1947. At the close of the session, appropriations had reached a total of $69,780,000,000, of which approximately $62,000,000,000 was counted as new appropriations. Toward the close of the session Congress passed a measure rescinding some $52,000,000,000 of war appropriations and authorizations, only part of which belonged under the 1946 budget. After Congress had adjourned, this measure was vetoed by President Truman because of a rider which ordered the return of the United States Employment Service to the states. The President ordered the Budget Bureau to see that the money was not spent until Congress should have taken further action. The effect of the end of the war and the proposed cutbacks is to make the total amount appropriated during the year somewhat misleading.

Among the major appropriation acts of the year were the following:

First Deficiency Appropriation, 1945	$2,600,000,000
Treasury and Post Office	$1,343,000,000
War Department Civil Agencies	$112,450,940
War Agencies (Civilian)	$769,364,850
Independent Offices	$3,000,000
Agriculture	$594,724,527
State, Justice, Commerce Departments	$270,000,000
Navy	$23,421,000,000
Legislative Branch	$50,994,481
District of Columbia	$64,000,000
Interior Department	$102,602,628
Labor-Federal Security	$1,100,736,922
Military Appropriations	$38,620,904,581
Second Deficiency Act, 1945	$18,000,000
First Deficiency Act, 1946	$2,388,201,630

The measure for the 20 civilian war agencies was not passed until July 13, 13 days beyond the usual deadline. The original bill had called for $446,200 for continuation of the Fair Employment Practice Committee for another year. This resulted in a filibuster in the Senate. FEPC was supported by a working coalition of Republicans and Northern Democrats and opposed by Southerners. The matter was finally compromised by granting FEPC $250,000. The amendment giving this sum was somewhat ambiguously worded but suggested complete termination of the agency by the end of the 1946 fiscal year.

President Truman in his message of Sept. 5 asked that the agency be made permanent. In the House there was an effort to cut the funds for the Office of War Information to $18,000,000, less than half the sum originally asked, but it finally received $35,000,000.

ARMED FORCES

Measures connected with the armed forces were numerous. New problems were raised by the cessation of hostilities, and action on several controversial matters was left incomplete at the end of the session.

A bill was passed in January, increasing the Naval Reserve Officers Training Corps to 24,000 until one year after the cessation of hostilities, then continuing it at 14,000. The rank of general was created for the Marine Corps and the Coast Guard, with the proviso that each body should have only one such officer and that the authority to fill the post should end after the war. It was provided that military or naval academy appointments for sons of service men who had received the Congressional Medal of Honor or died in action should not be charged against the existing admission quotas of the states. Age limits for eligibility to enter the academies were raised for veterans of the Second World War.

The problems of compulsory service and universal military training proved difficult to solve. In his opening message President Roosevelt asked that a national service act be rushed through. Congress attempted to meet this by partial measures, and a limited manpower draft bill passed the House on Feb. 1, providing that men between 18 and 45 who left essential jobs or refused to take them, be subject to induction, fine, or imprisonment. The Senate passed a "voluntary" manpower bill of its own. A compromise bill was rejected on April 3, despite the President's pleas. Proposals for a draft of nurses met with no success. A resolution which would have continued the deferment of large numbers of agricultural workers was vetoed by President Truman as his first major veto. His objection was that it conferred special privileges on a group. The veto was promptly sustained by the House. A bill providing for the extension of the Selective Service Act to May 15, 1946, or to the date of the termination of hostilities as specified by Congress, was passed in May. President Truman signed it reluctantly because it contained a proviso that no man under 19 should be sent into actual combat service without at least six months of military training. This, he felt, put undue restrictions on the Army and Navy.

As hostilities ended, the question of post-war training became acute. On Oct. 24 President Truman asked for a year's military training for young men to provide a trained reserve. Extensive hearings on the matter were held by the House Military Affairs Committee, and the plan was strongly advocated by General George C. Marshall, then Chief of Staff, by Secretary of War Patterson, General Eisenhower, Dr. Karl T. Compton of the Massachusetts Institute of Technology, and Gen. William S. Knudsen. Admiral King urged it as necessary for the building up of an organized naval reserve. Dr. George F. Zook, president of the American Council on Education, asked delay in action to permit study by a commission to be appointed by the President. Dr. James B. Conant suggested the extension of Selective Service on a year-to-year basis with the term of draftees limited to 15 months. This would give time for the study of the way in which the atomic bomb affected the armed forces. Various organizations sent representatives in opposition to the proposal. No action had been taken by either house at the close of the session.

Steps were taken to maintain and to extend the Regular Army. In June, enlistments were permitted during the war period up to the total enlisted peacetime strength of the Regular Army. In October this measure was clarified and extended to both the Army and Navy, and enlistment in the Regular Army was opened to all qualified males over 18 with no limit on numbers. New retirement provisions for the Regular Army comparable to those now in force in the Navy were introduced. Special inducements for reenlistment of discharged veterans were offered, such as furlough travel allowances, acceleration of mustering-out payments, and a reenlistment allowance. The benefits of the "G. I. Bill of Rights" and the free mailing privilege were also given recruits. The Army and the Navy were encouraged to undertake recruiting compaigns.

The House in October voted for a peacetime Navy of 6,084 warships, totaling 4,698,000 tons.

UNIFICATION PROPOSAL FOR ARMED FORCES

One of the most controversial matters of the year was the bill to merge the armed forces into a single unit. Long and vigorous hearings were held on the matter. In general there was a cleavage between the Army and the Navy on the desirability of the merger. Among the most vigorous witnesses for this were General Marshall, General Eisenhower, and General Doolittle. Secretary of the Navy Forrestal submitted a Navy Plan for National Security to the Senate Military Affairs Committee on Dec. 12 which would coordinate action through a National Security Council to which joint Chiefs of Staff would report but would leave the present forces and departments separate. On Dec. 19, the President sent a message urging a single Department of National Defense with co-equal status for land, sea, and air forces and a single secretary in the Cabinet. He suggested a commander for each branch responsible to a Chief of Staff selected on a rotating basis. Among those testifying in opposition to the merger were Admiral Nimitz, who reversed his earlier views on the basis of further study, Admiral Leahy, and Admiral Halsey. Several bills differing in many points were introduced but action was incomplete at adjournment.

ATOM BOMB

The atom bomb was the subject of much study. A jurisdictional dispute developed in the Senate as to which committee should have charge of bills dealing with atomic energy. This was resolved by the creation of a Select Senate Committee on Atomic Energy with 11 members. In the House the Military Affairs Committee studied the subject and recommended passage of an atomic energy act, drafted by the War Department and designed to control the domestic aspects of the problem. Each committee heard testimony of scientists and military men. Major General Leslie who controlled development of the bomb urged the ending of his own control and replacing it with a nine man commission. He favored continuance of the manufacture of the bomb for the present. Professor Harold Urey thought domestic control should be placed under a director or a small *ex-officio* commission but that the weapon should no longer be made. Other scientists gave their views. In general witnesses approved the plan of President Truman, Prime Minister Attlee and Prime Minister King for placing international control of atomic energy under a commission responsible to the UNO. Final action was deferred until 1946.

DEBT LIMIT

The limit on the public debt was increased from $260,000,000,000 to $300,000,000,000.

FEDERAL EMPLOYEES AND CONGRESSIONAL PAY

On June 30, President Truman signed a bill giving Federal employees a basic wage increase averaging 15.9 per cent and time and one half for overtime. This affected most Federal civil service employees except for the Post Office Department and a few other specified groups. It was the first general increase for Federal workers since 1923 and was estimated to add $736,000,000 to the Federal payroll.

In the Legislative Branch supply bill of June there was a provision for a $2,500 annual expense account for

House members retroactive to Jan. 2, 1945. The Senate refused to vote this for itself, although it did not disapprove the House payment. President Truman signed the bill, though he disapproved of the method employed. He was decidedly in favor of an increase in the pay of congressmen.

The Administration proposed giving an increase of approximately $10,000 to most top Federal officials in legislative, executive, and judicial branches of the government. No action was completed on this measure.

At the close of the session a bill was being considered which would grant pay increases to 1,000,000 Federal officials, justices, judges, and other workers and members of Congress. It would amount to a flat 20 per cent increase for employees under the Classification Act and $5,000 for most of the superior offices.

FOREIGN SERVICE

A measure was passed to improve the quality and efficiency of the Foreign Service. It provided for the creation of an administrative and fiscal branch in the service; temporarily removed the percentage limits on promotion in the service because of wartime difficulties; permitted the assignment of members of the State Department to Foreign Service for four-year periods, as well as qualified persons from other departments or agencies; permitted the assignment of Foreign Service members to the State Department; and made some other changes designed to improve personnel.

HOUSING

An amendment to the National Housing Act permitted the increase by $100,000,000 of the aggregate amount of mortgages under Title VI of the National Housing Act and extended the authority of the Federal Housing Administration to insure under this title until July 1, 1946. This clause provides for government insurance of privately held mortgages on privately owned war housing in localities in which the President finds an acute housing shortage which would impede the war effort. The previous authorization under this title was exhausted early in 1945. Special funds to aid in housing for veterans were also included in the final deficiency bill of the year.

INSURANCE

In 1944 the Supreme Court decided that insurance is interstate commerce and so subject to Federal regulation. Congress therefore passed an act stating that regulation and taxation of insurance by the states is in the public interest and may continue. It was specified that the anti-trust provisions of the Sherman, Clayton, and Federal Trade Commission Acts would apply to the insurance business after Jan. 1, 1948, to the extent that the state had not acted. No change was made in the application of provisions of the National Labor Relations Act, the Fair Labor Standards Act, or the Merchant Marine Act to insurance.

INTERNATIONAL FINANCE

Lend Lease was extended until June 30, 1946, with clauses which precluded the use of lend-lease funds for post-war reconstruction and rehabilitation; however, certain contracts were not to be regarded as post-war relief, specifically those in which the United States agreed to furnish to a foreign government articles for defense or war services and provided for the disposal of these articles on terms prescribed by the President after he had determined that they were no longer needed for defense. The estimates made in June to Congress for expenditures under Lend Lease were for an appropriation of $1,975,000,000 of new funds and the use of $2,400,000,000 of unappropriated balances, a marked reduction from that for 1945. Lend Lease was suspended by President Truman immediately after the surrender of Japan.

Congress voted to approve participation by the United States in the Bretton Woods pacts for an International Monetary Fund and the Bank for Reconstruction and Development. Approval in the House was by a vote of 345 to 18, and in the Senate by 61 to 16. The United States was the first country to ratify the agreements. By Dec. 31, 1945, 28 countries had ratified, exceeding the 65 per cent quota required to make the agreement effective. The share of the United States in these deposits is $2,750,000,000 for the Bank and $3,175,000,000 for the Fund, but only a portion of this need be paid at once. The measure provides for a governor of the Fund who serves also as governor of the Bank, an executive director of the Fund, and an executive director of the Bank, all appointed by the President with the consent of the Senate. It also establishes a National Advisory Council on International Monetary and Financial Problems, to coordinate the policies of our representatives on the Bank and Fund with all agencies of our government participating in foreign financial transactions. Membership on this council is *ex officio*. If agreement of the United States is required before action may be taken, the decision is made by the Advisory Council under the general direction of the President. Congress, however, must authorize any change in the United States quota or in the par value of the dollar under the Fund, any subscription to additional shares in the Bank, and any loan to the Bank or Fund. It also amends the Johnson Act by providing that it does not apply to sale or purchase of bonds and other securities of a foreign government in default while the Government is a member of both Bank and Fund.

A companion to the Bretton Woods bill was the expansion of the lending authority of the Export-Import Bank of Washington from $700,000,000 to $3,500,000,000. The objectives of the increase are the maintenance of a high level of employment by providing for foreign trade in the reconversion and post-war periods. The Bank encourages the participation of private capital and makes loans only when private facilities are not available.

INVESTIGATIONS

The year brought as usual many investigations by standing and select committees of Congress. In May official and unofficial missions overseas were so numerous as to create an absentee situation. House officials were reported to have insisted on delay of other trips until important legislative measures could be passed.

In January a special House Committee on the election campaign proposed that Congress set up a permanent agency to police the activities of all political campaign organizations and bring them under scrutiny of the Corrupt Practices Act. So many organizations other than established political parties participated in the 1944 presidential campaign that the special committee was unable to estimate expenditures.

The Committee on Un-American Activities, formerly known as the Dies Committee, was made a standing committee of the House in a surprise move at the beginning of the session.

The Joint Congressional Economy Committee under the chairmanship of Senator Byrd reported on March 22 that, in the three years of its existence, it had effected savings of $2,457,623,568 to the Federal Government through abolition and modification of various agencies and changes in procedure. The committee recommended overall control of government corporations by the General Accounting Office and the Bureau of the Budget. This was later put into effect.

The Ways and Means Committee spent some time studying a decision of the Treasury Department to allow John A. Hartford an income tax deduction of $196,000 written off as a "bad debt" on a $200,000 loan to Elliott Roosevelt, but finally recommended that the Treasury's settlement be allowed to stand. The committee divided on partisan lines and a minority report was filed, opposing the decision.

Seven members of the Colmer Committee of the House spent eight weeks in Europe and conferred with various high officials there. In November the whole committee of 18 members unanimously approved a report urging reorganization of American economic foreign policy with centralization of foreign economic authority in the State Department in a new Under-Secretary for Economic Affairs. It also recommended productive loans to Great Britain with certain conditions as to removal of exchange and import restrictions and loans to Russia if certain statistics and information were produced in full, if her political obligations were fulfilled on the same terms as those of other governments, and if freedom of entry were given to reporters in Russia and the countries under Russian control, with other similar conditions. The committee also recommended immediate relief and short term productive loans in the liberated countries of Europe.

The resignation of Gen. Patrick Hurley as ambassador to China contained charges that State Department subordinates had subverted American foreign policy in China. The Senate Foreign Relations Committee held hearings in which General Hurley, Secretary of State Byrnes, and other witnesses testified and examined secret State Department reports. After a week of these, Senator Connally, Chairman, announced that no further hearings or closed sessions were planned and the matter was apparently dropped.

Some other conspicuous investigations such as those on Pearl Harbor and on the Atom Bomb are noted elsewhere in this article.

LABOR AND SOCIAL SECURITY

Many proposals were made in the fields of Labor and Social Security during 1945, but almost nothing was carried to completion before adjournment. A measure to amend and broaden the Social Security Act to include a national social insurance system covering health, unemployment, disability, retirement, and survivors' insurance and to continue Federal operation of the United States Employment Service was introduced in the Senate in May, but was not passed before the close of the session. The Social Security taxes for 1946 were frozen at the earlier figure of one per cent by the November tax reduction act.

In May President Truman asked that unemployment compensation be increased to a maximum of $25 a week for a 26-week period, that coverage be extended to Federal employees, maritime workers and others not covered, and that the Federal Government pay the benefits to these groups and supplement the state payments for others as an emergency measure. The Senate later passed a compromise measure which would have provided 26-week benefits but at the state-established rates. This was not passed by the House.

The President's request that the United States Employment Service remain under Federal control until June 30, 1947 was rejected by both Senate and House. The service had been taken over from the states in 1942 as a war measure. The order for the return of the service to the states was contained in a rider attached to a bill cutting wartime appropriations by $52,000,000,000. This was vetoed by President Truman on Dec. 23, after Congress had adjourned. The President expressed his disapproval not only of the order returning the service but also of the method used in doing so.

In President Truman's message of Sept. 5 he asked for a "full employment" bill which would provide periodic government gathering of facts about employment and opportunities therefor, would insure a stable and consistent public policy so that private enterprise could better make its plans, and would direct government policies and programs to assure maximum production and employment in private enterprise. He spoke also of the ultimate duty of the Government to use its own resources if all other methods of preventing unemployment failed. The Senate in September passed a somewhat modified bill on the general lines indicated by the President, which made a declaration of policy and provided for a National Production and Employment Budget and a Joint Congressional Committee to study the budget. On Dec. 14 the House passed a greatly altered version of the bill which omitted all reference to "full employment," using instead the phrase "high level of employment," and did not provide for the "Employment Budget." The two measures were sent to conference but not reported on before the close of the session.

An Administration request for labor fact-finding boards to investigate labor disputes affecting the public interest attracted much attention early in December. A bill for this purpose was introduced, and hearings were begun in both Senate and House Labor Committees. The matter proved a highly controversial one, and it was decided to continue the hearings after the holiday.

The House by voice vote in December passed legislation to bring labor unions under the provisions of the 1934 Anti-racketeering Act. The Senate took no action on the bill before adjournment. A rider attached to the December deficiency bill stopped the taking of strike votes by the National Labor Relations Board.

PALESTINE QUESTION

In the final days of the session, both houses passed a resolution asking the Government to use its "good offices" with Great Britain to permit free entry of Jews into Palestine. The resolution was merely an expression of opinion, but there was much discussion in advance as to the advisability of its passage.

PEARL HARBOR

The full investigation of the Pearl Harbor disaster had been postponed on various occasions until the end of the war. In June a bill was passed extending the time for prosecutions until six months after the termination of hostilities. Immediately after Congress reconvened in September there was a demand for such an investigation. A concurrent resolution providing for a joint Congressional committee of ten members passed early in September. This was composed of three Democrats and two Republicans from each house, all lawyers. Counsel for the committee was William D. Mitchell who had complete access to all records and prepared much documentary material which was used during the sessions. Even before the hearings started there was controversy over the right of individual members of the committee to obtain information from government offices without specific committee authorization. It was agreed that they might receive voluntary testimony but could not as individuals demand secret documents. The hearings opened on Nov. 15.

In general, witnesses presented prepared statements and then were questioned by members of the committee, often a lengthy process. The first group of witnesses and sets of documents presented dealt largely with the Washington end of the situation. To the public, perhaps, the most interesting fact disclosed at this time was the breaking of the Japanese code by the United States in 1940. Admiral T. B. Inglis and Col. Bernard Thielen gave accounts of the events in their departments in late November and early December 1941. Admiral Richardson, who was Chief of Staff of the Pacific Command until Feb. 1, 1941, was also called. He was apparently the only witness who had disapproved the basing of the Pacific Fleet at Pearl Harbor.

Former Secretary of State Cordell Hull and former Under Secretary Sumner Welles were questioned extensively on diplomatic relations preceding Pearl Harbor and on the nature of the so-called "ultimatum" to Japan. They were also asked about agreements with other countries, particularly Great Britain, which might have involved this country in war. Some of the questions went back to the Atlantic Charter meetings at which Welles was present. Both denied any such commitments and the existence of any diplomatic intent to provoke war. This was also borne out by Joseph C. Grew, former ambassador to Japan. Next Major-General Sherman Miles and General Leonard T. Gerow testified in regard to the data sent to General Short and other commanders, and the factors in its selection.

General Marshall appeared before the committee for several days and was subjected to most detailed questioning about the warnings sent and the means of communication used. In connection with his testimony, the committee made public in full his two letters to Governor Dewey of New York at the time of the 1944 campaign in which he urged the Governor not to press the Pearl Harbor issue lest the breaking of the codes become known to the Japanese. Following General Marshall, Admiral T. S. Wilkinson and Admiral Richard K. Turner were questioned as to the division of responsibility for orders in the Navy and the sending of information to the fleet commanders.

It had been originally intended that the hearings should end early in January but the questioning of the witnesses had become very detailed and much time was consumed. By Dec. 13, 700,000 words of testimony had been gathered. On Dec. 14, Counselor Mitchell announced that he and his staff were resigning soon since it was apparent that the hearings would not be ended by the time expected. Even Senator Barkley, chairman of the committee, thought that his other duties might compel his withdrawal. Congress, before adjournment, authorized continuance of the investigation to Feb. 15, 1946. The committee then recessed from Dec. 21 to Dec. 31.

After the recess, Admiral Stark was questioned for five days and gave detailed reports as to the contents and purposes of the messages he sent just prior to the Pearl Harbor disaster. At this time, a hitherto secret report of the late Secretary of the Navy, Frank Knox, was released, which gave his views after investigation. The committee then recessed until Jan. 15, 1946, to give its new counsel, Seth W. Richardson, time to become familiar with the testimony and records. The point was regarded as concluding the Washington phase of the investigation. It was fairly clear that, though there was fear of a Japanese attack, most of the witnesses had thought it would be to the South and not directed at Pearl Harbor. It was not clear whether the warnings from Washington had been adequate and not properly heeded or whether the field commanders had lacked important information. The men in the field were heard next. Admiral Husband E. Kimmel discussed the withholding of the "intercepts" and the interpretation of orders. He was followed by Major General Walter C. Short. Several other major witnesses remained to be heard, but it was hoped that the investigation could be ended by Feb. 15.

POST OFFICE

A measure was passed continuing the temporary increase in postal rates on first class matter until June 30, 1947. In July a bill provided for reclassifying postmasters, officers, and employees of the Post Office Department and established a uniform procedure for recalculating compensation. In December the Department was authorized to give cash awards to its employees for ideas that would improve the postal service. Total payments for this were limited to $25,000 in any one year.

PRICE CONTROL

The office of Price Administration was continued until June 30, 1946. Action was completed on the bill less than ten hours before the old law would have expired. The bill covered both the Emergency Price Control Act and the Stabilization Act of 1942. Under this act the OPA is required to obtain the approval of the Secretary of Agriculture in setting prices applying to processors but not to retail stores. All slaughtering limitations were lifted on plants found to be sanitary by the Secretary of Agriculture. There was also a section added establishing rent advisory councils to be consulted before issuance of regulations in the field.

PUBLIC WORKS

A Rivers and Harbors bill was passed in February, authorizing post-war construction of navigation, irrigation, and hydroelectric works costing nearly $500,000,000. The Missouri Valley Authority and other controversial projects which had caused postponement of a similar act in 1944 were omitted. In October the President asked for revival of the public works program as a part of reconversion and requested a special appropriation for projects interrupted by the war. These included flood control, highways, and the dams called for in the Mexican water treaty. Much debate took place over some items of this sort, notably the Garrison Reservoir in North Dakota. The final deficiency bill of the session contained an appropriation of $125,000,000 for navigation and flood control.

RECIPROCAL TRADE AGREEMENTS

President Roosevelt in March sent a message to Congress asking for renewal of the Trade Agreements Act, praising the results of the act and stressing its importance in the reconversion period. Two months later President Truman appealed for passage of the bill. As passed, the act was extended to June 12, 1948. The President was given the power to reduce tariffs by 50 per cent from present rates to countries which made reciprocal concessions. This was a gain over the earlier version of the act in which the tariff rates of 1930 were the basis for reductions. The use of Jan. 1, 1945, as the base, makes possible new reductions.

GOVERNMENT REORGANIZATION

The entire problem of reorganization of Federal agencies was recognized as a serious one because of the numerous war agencies and the need for rearrangement of the permanent agencies. One step in that direction was taken by a bill which required government corporations to submit their budgetary problems to the Bureau of the Budget and their expenditures to the General Accounting Office for audit. This measure was advocated by the Congressional Economy Committee. There are nearly 50 corporations, with assets estimated at $20,000,000,000. The Tennessee Valley Authority alone handles its funds as before.

In May, President Truman asked for legislation giving the President permanent authority to reorganize the executive branch of the Government. He felt that continuous revision was necessary to keep the government structure from becoming unwieldy, and suggested a measure similar to the Reorganization Act of 1939. Congressional action on a reorganization measure was completed on Dec. 14 and the bill signed Dec. 19. The powers of the bill are limited to the current presidential term. Any recommendations which the President makes become law within 60 days unless both Senate and House disagree. No readjustment of cabinet departments is permitted. The civil functions of the Army Engineers Corps are wholly exempted from reorganization. The Interstate Commerce Commission, Federal Trade Commission, National Mediation Board, National Railroad Adjustment Board, and Railroad Retirement Board are exempt from reorganization, but functions may be transferred to them. In the cases of the Federal Deposit Insurance Corporation, the Federal Communications Commission, United States Tariff Commission, and Veterans' Administration, separate plans must be submitted if changes are to be made.

SUBSIDIES

The Reconstruction Finance Corporation was given continued authority to pay subsidies for one year for food products and strategic materials. These were limited to $595,000,000 to meat producers, $100,000,000 for butter, $190,000,000 for flour, $290,000,000 for petroleum and petroleum products, $88,000,000 for strategic metals, and $100,000,000 for miscellaneous commodities. In signing the bill President Truman announced that he considered it as permitting administrative reductions or the elimination of subsidies whenever it might be shown that such payments were no longer needed.

The Commodity Credit Corporation was continued until June 30, 1947 and its borrowing power increased to $4,750,000,000. Limited subsidies were permitted to complete prior operations. The sum of $568,000,000 was allowed for subsidies on dairy products for the year ending June 30, 1946, and $120,000,000 for non-crop programs, such as feed-wheat, for the same time. Subsidies of $225,000,000 were also permitted for the 1945 crop. This was the last law approved by Franklin D. Roosevelt.

PRESIDENTIAL SUCCESSION

President Truman asked for a change in the order of succession to the presidency. He felt it wrong that it should lie within his power to name his possible successor and suggested legislation naming the Speaker of the House successor until a special election could be held. The House passed a measure providing for the succession of the Speaker in the event of a vacancy, but made no provision for a special election. The Senate took no action on the bill.

TAXES

In July a corporate tax adjustment bill was passed, estimated to free $5,500,000,000 for reconversion and post-war expansion. The measure increased the specific excess profits tax exemption from $10,000 to $25,000 after Jan. 1, 1946, a change estimated to free 12,000 corporations from the tax entirely and lighten the burden for many others. It also provided that post-war refund bonds would be payable at the option of the owner on or after Jan. 1, 1946. The measure made possible the use of the post-war credit of 10 per cent of the excess profits tax currently with respect to tax liabilities of 1944 and subsequent years. The payment of refunds resulting from carry-backs of net operating losses was speeded up, as was the payment of refunds from the recomputation of deductions for amortization of emergency facilities.

In November a tax reduction bill gave the first general reduction in 16 years. It became effective Jan. 1, 1946, for 1946 income, but was not retroactive. All taxpayers received some reduction, those with incomes under $50,000 receiving ten per cent or more, and 12,000,000 low income taxpayers were removed from the tax rolls entirely. The individual surtax exemptions of $500 for the taxpayer and $500 for each dependent were applied to the normal tax. Cuts were also made on the surtax. For corporations the excess profits tax was repealed as of Dec. 1, 1945, and slight reductions were also made for normal and surtax corporation rates for 1946. The $5 a year automobile use tax was repealed as of June 30, 1946. Service pay of enlisted personnel was exempted from any tax during the war years, and commissioned officers were given three years to pay any back taxes on their service pay. Social Security rates for employer and employee remained at one per cent each for 1946 instead of increasing automatically to two and one half per cent. The measure was estimated to cut revenue by $5,920,000,000.

TREATIES

The major treaty ratification of the year was that of the Charter of the United Nations Organization which is discussed elsewhere. Early in the year President Roosevelt asked the Senate to return to him the Anglo-American petroleum agreement of Aug. 8, 1944, since he felt that a new draft was needed because of diverse interpretations of its language, both here and abroad. In April the Senate ratified the United States-Mexico Water Distribution Treaty by 76 to 10.

The House voted 288 to 88 to participate with the Senate in the approval of treaties through decisions made by a majority of the membership of each branch of Congress. This would, of course, require a constitutional amendment. The measure was sent to the Senate, but it was not acted upon there.

UNITED NATIONS FOOD AND AGRICULTURAL ORGANIZATION

Membership in the United Nations Food and Agricultural Organization was accepted by the House on April 30 and the Senate on July 21, and signed by the President ten days later. This organization developed from the Hot Springs Conference of 1943. Member nations are required to make periodic reports on food and agriculture and to contribute to the Organization's financial support. The sum of $625,000 was authorized as the United States' share in expenses for the first year.

UNITED NATIONS ORGANIZATION

Some of the most important legislation of the year was that dealing with the membership of the United States in the United Nations Organization. The Charter of the UNO was signed in San Francisco on June 26. Two days later Senator Connally reported to the Senate on the conference at San Francisco, as did Senator Vandenberg on July 29. Both urged prompt ratification of the Charter. The Charter was formally presented to the Senate by President Truman on July 2 with an appeal for speedy action. The Foreign Relations Committee devoted a week to hearings at which Secretary of State Stettinius and other members of the State Department testified. Three days were given to testimony and written statements from anyone who wished to be heard. On July 16 the committee reported in favor of adopting the Charter without amendment.

The Charter was ratified 89 to 2 on July 28. This made the United States a member of the UNO, whenever a sufficient number of other countries should ratify the charter, but left several problems such as that of the powers of our delegate on the Security Council to be determined later by action of both Houses of Congress. It was understood, at least by Administration forces, that any military agreements implementing the Charter should also be passed in this way and not as treaties by a two-thirds vote in the Senate.

Action on the bill to implement participation in the UNO was completed in the last week of the session. This provides for presidential naming of an American representative on the Security Council with ambassadorial rank and a deputy for this post, for representatives to the General Assembly and to other UNO organs and agencies. These posts require Senate confirmation except in cases in which the appointees already hold Federal offices with Senate consent. Government officials may serve as delegates without extra pay. The President is to make annual or more frequent reports to Congress on the activities of the UNO and participation in them by the United States. He is empowered to use economic sanctions and other measures short of war without first consulting Congress. Negotiation of agreements with the Security Council to make armed forces available for emergency use is performed by the President with approval by act of Congress. The measures passed the Senate 65 to 7 and the House 344 to 15.

UNRRA

The United Nations Relief and Rehabilitation Administration was the subject of much legislative discussion during the year and eventually received the support asked. A House committee made a study of conditions during the summer. In his fourth report on UNRRA, on Oct. 11, President Truman revealed that about $780,000,000 of the United States' appropriation of $800,000,000 was committed by Aug. 31. The State Department at the same time urged prompt appropriation of $550,000,000 more already authorized for immediate use. This was voted by the House on Nov. 1 and by the Senate some weeks later. A rider attached to the bill providing that relief be withheld from countries which denied freedom of the press to American reporters was rejected in conference. The bill did request the President to seek permission for

American newspaper and radio men to go into countries aided by UNRRA.

An authorization bill to furnish a second $1,350,000,000 for UNRRA for relief in 1946 and 1947 passed both houses toward the end of the session. There was much discussion of UNRRA policies and methods during the debates on the measure. As passed, it specified that UNRRA shipments to Europe should end in 1946 and those to the Far East by March, 1947. It was made quite clear that Congress regarded this as the last authorization for UNRRA. The sum of $750,000,000 was appropriated for use in 1946 in a general deficiency appropriation.

VETERANS

Increased benefits for veterans were the subject of much discussion. General pension increases were provided for seriously injured veterans of all wars, especially the blind and those with multiple amputations. The maximum pension was increased from $265 to $300 a month, and the veterans' administrator was authorized to allow more than $300 a month to veterans with unusual combinations of disabilities.

The "GI Bill of Rights" was amended to give increased educational benefits and liberalized rules on loans. Student subsistence payments were increased $15 a month, and the clause deducting benefits under the bill from any future bonus was deleted. The 25-year age limit was removed. Any veteran may receive a year's training, plus as many years as he was in service, with a maximum of four years. Short intensive courses and recognized correspondence courses are approved, but the cost may not exceed $500. Other modifications were concerned with time of starting and completing school courses. The time for making guaranteed loans is extended from two to ten years after the war. Extensions are also made in the amortization period. The term "reasonable value" is substituted for "reasonable normal value" as a loan requirement.

Prior approval of loans by recognized lenders is no longer required. Loans in such cases are automatically guaranteed after a veterans' administration appraisal shows the property to be reasonably priced. The maximum guarantee on real estate is increased from $2,000 to $4,000, and other provisions are broadened. Americans who fought for allied governments became eligible for GI loan benefits.

In another measure, red tape was cut for entry in the United States for wives of servicemen married overseas and for their children.

The final deficiency appropriation made about $190,000,000 available for veterans' housing. This was to be used to transfer temporary dwelling units from former war areas to communities lacking adequate facilities for veterans. It operates as a part of the Lanham Housing Act.

WAR POWERS

There was discussion as to the advisability of declaring the war officially at an end and as to the continuation of the President's war powers. No action was taken on the first issue. On Dec. 20 legislative action was completed on a measure extending the wartime rationing, material allocation, and priority powers of the President until July 1, 1946, as well as most of the other powers which he held under the second War Powers Act. The measure also continued the emergency powers of the Inter-State Commerce Commission over motor and water carriers and the authority of the War and Navy Departments to occupy property before condemnation although actual seizure was no longer permissible. The authority of the Federal Reserve Bank to purchase obligations up to $5,000,000,000 directly from the Treasury instead of going to the open market was continued. Of immediate interest was a provision in the act waiving navigation laws to allow overloading of ships until troops are returned from overseas. Administration forces had hoped to extend the war powers until Jan. 1, 1947, but this was rejected.

WAR PRODUCTION AND RECONVERSION

The life of the Smaller War Plants Corporation was extended to Dec. 31, 1946, but the original measure was amended to have the directors appointed by the President rather than by the chairman of the War Production Board.

The termination date for renegotiation of war contracts was extended to Dec. 31, 1945, with a provision for earlier termination if the war should be officially declared ended before that date. The President's former power to change the date was withdrawn. Repricing provisions for war contracts were also to terminate at the same time.

In September, following an administrative request, surplus war property disposal was placed under a single administrator with a two-year term and an annual salary of $12,000. The administrator replaces the former Surplus Property Board.

The nation was returned to standard time by a measure which ended wartime as of Sept. 30, 1945.

THE SUPREME COURT AND CONSTITUTIONAL LAW

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GENERAL

In July Mr. Justice Owen J. Roberts resigned the seat on the Supreme Court to which President Hoover had appointed him in 1930. To fill this vacancy, President Truman in September appointed Harold H. Burton, a Republican Senator from Ohio, who took his seat at the opening of the October term. In May, President Truman appointed Mr. Justice Jackson to be the Chief American prosecutor at the pending trial of Axis war criminals at Nuremberg. His absence during the fall and early winter led the Court to assign for reargument "before a full bench" several important cases in which, it may be assumed, the eight sitting justices had been evenly divided. This has led to serious discussion of whether any Federal judge should be allowed to accept a non-judicial assignment which would interfere with his judicial duties. Divisions in the Court in 1945 were as numerous and as difficult to classify as before. Four justices dissented in 24 cases, and three justices in 16 cases. The Court seems to be moving toward the old practice of the pre-Marshall period by which the justices wrote *seriatim* opinions. There is marked increase, unfortunately, in the number of cases in which three, four, and even five justices feel impelled to write separate opinions.

TREND AND GROUPING

The decisions of the Court fell into groups. First, an important case arising from the war brought to the Court for the first time the question of what is treason under the Constitution. Second, a group of cases involving civil liberties dealt with the deportation of Harry Bridges, the power of Congress to punish state officers for brutality to prisoners, the right of a state to bar a conscientious objector from the practice of law, the right of accused persons to counsel, and two problems of discrimination against Negroes. Third, several cases involved the validity of recent state laws directed against labor unions and their activities. Fourth, cases which arose under the Sherman Act included the much-publicized Associated Press case, and two cases involving the applicability of the act to labor union activities. Finally, the Court added an important sequel to its decision of three years ago on the out-of-state recognition which must be given to Nevada divorces.

TREASON

In *Cramer v. United States* (April 23), the Supreme Court for the first time in its history reviewed a conviction for the crime of treason, and in so doing analyzed the nature of treason and the kind and measure of evidence required to prove it. The prosecution of Cramer resulted from his association with two of the German saboteurs who landed in this country in 1942 and whose trial by a military commission was sustained by the Court in *Ex parte Quirin* (317 U. S. 1, 1942). Cramer was born in Germany, served in the German Army in 1918, came to this country in 1925, and was naturalized in 1936. He appears to have been a quiet, intelligent, and law-abiding person. He was at one time a member of the Friends of New Germany, a predecessor of the German-American Bund, but withdrew before it became the Bund. He retained a strong affection for Germany. Before Pearl Harbor he opposed our entrance into war with Germany. He refused to work on war materials and expressed concern over the possibility of being drafted into our army and "misused" for purposes of "world conquest." There is no evidence, apart from the acts charged against him in this case, that Cramer said or did anything disloyal to this country after we entered the war.

Cramer was a close friend of Werner Thiel, later one of the German saboteurs, and lived with him in New York from 1937 to 1941, at which time Thiel, an ardent Nazi, returned to Germany. Cramer corresponded with Thiel in Germany. On June 17, 1942, Thiel, as a member of a group of four saboteurs led by Edward Kerling, landed from a German submarine near Jacksonville, Fla. Thiel and Kerling came to New York and registered at a hotel under assumed names. The next day a note was slipped under Cramer's door urging him to meet "Franz from Chicago" at a specified time and place. Cramer said he knew no Franz, but kept the appointment and met Thiel. Cramer admitted that he knew Thiel had come from Germany. He asked him if he had been brought by German submarine, and Thiel answered evasively. Thiel said he had "three and a half or four thousand dollars" with him, and that "if you have the right kind of connections you can even get dollars in Germany." Cramer offered to keep Thiel's money for him but nothing was done about it that evening. They agreed to meet at a tavern the next evening, and on that occasion Kerling joined them for awhile. Cramer had known Kerling in this country and knew he had returned to Germany. Thiel entrusted his money to Cramer for safekeeping, but asked him not to put all of it in a safe-deposit box since he might need it "in a hurry." Thiel was arrested after leaving Cramer. Cramer took Thiel's money home, secreted some of it, and put the rest in his bank. As previously agreed upon, he made contact with Thiel's fiancée, told her that Thiel had come over on a submarine, had a large sum of money, and would receive secret instructions about what to do and where to go. He later wrote Thiel, using the latter's assumed name, and tried to arrange a rendezvous between Thiel and the girl. Cramer was arrested and after some unsuccessful lying he admitted that he felt sure that Thiel had come from Germany by submarine on a mission for the German Government and that he thought the mission was "to stir up unrest among the people and probably spread propaganda."

After the case had been twice argued, the Court, dividing five-to-four, held that the facts just stated do not constitute sufficient proof of the crime of treason as defined by the Constitution. Mr. Justice Jackson wrote the majority opinion. The Constitution states: "Treason against the United States shall consist only in levying war against them, or in adhering to their enemies, giving them aid and comfort. No person shall be convicted of treason unless on the testimony of two witnesses to the same overt act, or on confession in open court." The history of the law of treason in England and in this country shows that this rigidly limited provision in the Constitution was put there by men who "were taught by experience and by history to fear abuse of the treason charge almost as much as they feared treason itself." They were guarding against two dangers "(1) perversion by established authority to repress peaceful political opposition; and (2) conviction of the innocent as a result of perjury, passion, or inadequate evidence." A treason conviction, in short, must rest on two elements, treasonable intent, and overt acts in pursuance of that intent proved by the evidence of two witnesses. The Court made the following points: *First,* the treasonable intent, or "adherence to the enemy," necessary to spell out treason, need not be proved by the evidence of two witnesses. It may be reasonably inferred from overt acts, and certain kinds of overt acts are in themselves evidence of treasonable intent. *Second,* the overt acts necessary to the crime of treason must, however, be such as to sustain a finding that the accused gave aid and comfort to the enemy. *Third,* the overt acts charged against Cramer, and supported by two-witness proof comprised merely his meeting with Thiel and Kerling at the times and places above stated, their drinking together, and their holding long and earnest conversations. There was no evidence of what they talked about. "Cramer furnished them no shelter, nothing that can be called sustenance or support, and there is no evidence that he gave them encouragement or counsel, or even paid for their drinks." These overt acts do not amount to giving aid and comfort to the enemy. The contention of government counsel that "little imagination is required to perceive the advantage such meeting would afford to enemy spies not yet detected" is met by Mr. Justice Jackson's comment that "the difficulty with this argument is that the whole purpose of the constitutional provision is to make sure that treason conviction shall rest on direct proof of two witnesses and not on even a little imagination." *Fourth,* the Government did not present to the jury the overt acts attributed to Cramer in connection with his taking of Thiel's money for safe-keeping. Knowledge of this came exclusively from Cramer's own statements while on the stand, and the Government appears to have recognized either that the statement could not be regarded as "a confession in open court" or that the statement lacked two-witness proof. Had these overt acts been properly established the result might have been very different since they did give aid and comfort to the enemy. *Fifth,* the Court answered the charge that its rigid construction of the treason clause prevents the Government "from adequately combating the techniques of modern warfare," by stating that Congress has full power to forbid many acts short of treason which imperil our wartime safety, and implied strongly that other and lesser charges might perhaps have been made and sustained against Cramer.

Mr. Justice Douglas wrote a dissenting opinion in which the Chief Justice and Justices Black and Reed concurred. He attacked what he regarded as the ultra-rigid test applied by the Court to the nature of the overt acts necessary to spell out treason, and urged that Cramer's meeting with the two saboteurs was under the circumstances an overt act of treason. He also protested against the exclusion of the evidence given by Cramer relating to his voluntary safeguarding of the saboteur's money.

DEPORTATION OF HARRY BRIDGES

In *Bridges v. Wixon* (June 18) a divided court set aside as unlawful the deportation order against Harry Bridges. While the decision did not turn on a constitutional point, this case, which had been a *cause celèbre* for a decade, intimately concerns the civil liberties of aliens. The facts are as follows: Harry Bridges came to this country from Australia in 1920. He was a longshoreman, and he became active in the labor union movement on the West Coast. He became head of the International Longshoremen's Association (an A. F. of L. union) and led the maritime workers' strike on the Pacific Coast in 1934. In 1937 this union broke with the A. F. of L. and joined the C. I. O. under the new name of International Longshoremen and Warehousemen's Union. Bridges has been the head of this union on the Pacific Coast ever since, and holds important offices in the C. I. O. In 1934 and 1935, the Immigration and Naturalization Services investigated Bridges with a view to determining if he was liable to deportation, but found not even "a shred of evidence" to support such action.

In 1938 fresh deportation proceedings were started on the ground that Bridges had been and then was a member of or affiliated with the Communist Party of the United States, and that that party advocated and taught the overthrow by force of the Government of the United States. At that time the statute dealing with deportation as construed in *Kessler v. Strecker* (307 U. S. 22, 1939), required a showing of present membership in the Communist Party to support deportation. Past membership was not sufficient. A hearing was held before Dean James M. Landis, of the Harvard Law School, as special examiner, who concluded that the evidence showed that Bridges was neither affiliated with nor a member of the Communist Party. The Secretary of Labor sustained the examiner and dismissed the proceedings in January, 1940.

Resentment against Bridges in certain quarters was sufficient to lead the House of Representatives thereupon to pass a special bill directing the Attorney General "notwithstanding any other provisions of law" immediately to deport Bridges, "whose presence in this country the Congress deems hurtful" (H. R. 9766, 76th Cong. 3d Sess.). The Attorney General protested that this bill was inconsistent with the American practice and tradition of due process of law, and it died in a Senate committee. Congress, however, in passing the Alien Registration Act of June 28, 1940, amended the statute relating to the deportation of aliens by authorizing the deportation of any alien who was "at the time of entering the United States, or has been at any time thereafter," a member of or affiliated with an organization that believes in or advocates the overthrow by force or violence of the Government of the United States.

This amendment set aside the ruling in *Kessler v. Strecker*. Action to deport Bridges was started under the new statute on the ground that at an earlier date he had been a member of or affiliated with the Communist Party. A new hearing was held before a special examiner, Judge Charles B. Sears, recently retired from the New York Court of Appeals. Judge Sears found that the Communist Party did advocate the overthrow of government by force and violence, that the Marine Workers Industrial Union was affiliated with the Communist Party and was an organization of the same character, and that Bridges after entering this country had been affiliated with both organizations and had been a member of the Communist Party. He recommended deportation. The Board of Immigration Appeals reviewed these findings and concluded that Bridges had not been affiliated with or a member of either organization. The Attorney General reviewed the Board's decision, agreed with Judge Sears, and ordered Bridges to be deported. Bridges, having surrendered to the immigration officers, attacked the legality of his detention by seeking *habeas corpus*. The District Court, and later the Circuit Court of Appeals, sustained the deportation order and the Supreme Court took the case on certiorari.

In a five-to-three decision, Mr. Justice Jackson not participating, the Court held the deportation order against Bridges void. In his opinion for the majority, Mr. Justice Douglas, by-passing the constitutional questions urged on the Court, confined himself to the two grounds on which the deportation order rested. The first was that Bridges had been "affiliated" with the Communist Party. The deportation statute stated that "the giving, loaning or promising of money or any thing of value to any organization, association, society, or group of the character above described (advocating or teaching violent overthrow of government) shall constitute affiliation therewith," but it went on to state that this is not to be taken as "an exclusive definition." The Court proceeded therefore to expound the term "affiliation." It said that "it imports . . . less than membership but more than sympathy." Generally speaking, a man who worked with and helped finance the Communist Party would be affiliated with it, but here the Court injected a reservation of controlling importance, *i.e.*, "but he who cooperates with such an organization only in its *wholly lawful activities* can not by that fact be said as a matter of law to be 'affiliated' with it. . . . Alliances for limited objectives are well-known. Certainly those who joined forces with Russia to defeat the Nazis may not be said to have made an alliance to spread the cause of Communism . . . A different result is not necessarily indicated if aid is given to or received from a proscribed organization in order to win a legitimate objective in a domestic controversy."

It follows that one is "affiliated" with the Communist Party only if he cooperates with it in order to further its proscribed purposes and objectives. The record presents no evidence that Bridges was "affiliated" in this restricted sense with the Communist Party, or any other organization which advocated the overthrow of government by force or violence. He cooperated with various Communist groups "for the attainment of wholly lawful objectives." He accepted the aid and assistance of these revolutionary groups "to improve the lot of the workingmen on the waterfront. That he enlisted such aid is not denied. He justified that course on the grounds of expediency—to get such help as he could to aid the cause of his union." The finding that Bridges was "affiliated" with the Communistic groups was based, therefore, on too loose a meaning of the term.

The second ground for deportation was Bridges' alleged membership in the Communist Party. The evidence supporting this charge was the testimony of two government witnesses, O'Niel and Lundeberg, which was lumped together by the Attorney General in reaching his conclusion based on their "total weight," that Bridges had in fact joined the Party. The testimony of O'Niel, however, was in the form of unsworn and unsigned statements which were read into the record in violation of a regulation of the Immigration and Naturalization Service requiring all such statements to be taken down in writing and signed by the witness after he has been sworn. This procedural defect destroyed the Government's case on the question of Bridges' membership in the Communist Party. The Court recognized "that deportation is not technically a criminal proceeding," but it observed: "That deportation is a penalty—at times a most serious one—cannot be doubted. Meticulous care must be exercised lest the procedure by which he (the alien) is deprived of that liberty (to remain here) not meet the essential standards of fairness."

In a concurring opinion Mr. Justice Murphy asserted that "the Constitution has been more than a silent, anemic witness to this proceeding," and vigorously argued that the deportation statute is unconstitutional, first, because it denies due process by imposing punishment based on "guilt by association" rather than personal guilt, and secondly, because it does not meet the "clear and present danger" test applicable to freedom of speech and press.

Chief Justice Stone, with Justices Roberts and Frankfurter concurring, dissented on the ground that the Court was not authorized to determine the weight and credibility of the evidence against Bridges, but merely to decide whether there was "more than a scintilla" of evidence to support the findings of the administrative officers. The record clearly disclosed such evidence, and the deportation order was therefore valid.

FEDERAL PROTECTION OF CIVIL LIBERTY—THE POLICE BRUTALITY CASE

The case of *Screws v. United States* (May 7) involved the legality of an enterprising effort by the Department of Justice to extend the practical frontiers of the Federal protection of civil rights by prosecuting state police officers whose brutal treatment of a Negro prisoner resulted in his death. The facts of the case are gruesome in the extreme. Screws was sheriff in a county in Georgia. Aided by a deputy sheriff and a policeman, he arrested Hall, a Negro, late one night for the alleged theft of a tire. There was evidence that Screws held a grudge against Hall and had threatened to "get" him. The three officers handcuffed Hall, brought him to the courthouse, and there proceeded to beat him with their fists and a two-pound blackjack for from 15 to 30 minutes until he was unconscious. He was dragged by the feet into the jail and thrown onto the floor and died an hour later in a hospital. An unsuccessful effort was made to persuade the State of Georgia to prosecute the three officers. When this failed, the United States Attorney, with the approval and active aid of the Department of Justice (the Civil Rights Section), indicted and convicted Screws and the other two officers of violation of Section 20 of the Federal Criminal Code.

This section, part of the Enforcement Act of May 31, 1870, reads as follows: "Whoever, under color of any law, statute, ordinance, regulation, or custom, willfully subjects, or causes to be subjected, any inhabitant of any State, Territory, or District to the deprivation of any rights, privileges, or immunities secured or protected by the Constitution and laws of the United States, or to different punishments, pains, or penalties, on account of such inhabitant being an alien, or by reason of his color, or race, than are prescribed for the punishment of citizens, shall be fined not more than $1,000, or imprisoned not more than one year, or both." The indictment rested on the theory that the three officers had deprived Hall, under color of the law of Georgia, of rights guaranteed to him by the Fourteenth Amendment, namely "the right not to be deprived of life without due process of law; the right to be tried, upon the charge on which he was arrested, by due process of law and if found guilty to be punished in accordance with the laws of Georgia."

The Court's disposition of the case is a masterpiece of confusion. Having held the case seven months after hearing argument, the justices produced four separate opinions running to over 25,000 words, in no one of which, however, did more than four justices concur. Five justices did agree that Screws was entitled to a new trial because the trial judge did not correctly charge the jury. (This trial has since occurred, and the defendants were acquitted.) The leading opinion, written by Mr. Justice Douglas, dealt with three points. First, is the criminal charge here, that of violating the rights of a citizen which are protected in the Fourteenth Amendment, so vague as to violate due process of law. It was argued that Section 20 did not set up "an ascertainable standard of guilt." Can a state law-enforcement officer possibly know what rights are guaranteed to citizens by the Fourteenth Amendment and other clauses of the Constitution? This point is met by stressing the fact that the crime created by Section 20 is the "willful" deprivation of the citizen's rights, and Mr. Justice Douglas attempts, without conspicuous success, to make clear just what is meant by "willful" in this context. Since the trial judge did not charge the jury on this point of the willfulness of the defendants' action, the conviction is set aside and a new trial ordered. Second, it is held that Screws did act under "color of law" in committing this crime. The idea is rejected that an officer acts "under color of law" only when performing duties expressly authorized by statute. The term means "under pretense of law," and the doctrine stated in *United States v. Classic* (313 U. S. 299, 1941) is reaffirmed, "misuse of power, possessed by virtue of state law and made possible only because the wrongdoer is clothed with the authority of state law, is action taken 'under color of' state law." Third, while the responsibility for the enforcement of criminal justice rests chiefly with the state, there is no constitutional barrier which prevents Congress from punishing a state officer who deprives a person of a right secured to him by the Constitution or by Federal statute. To do so does not upset the proper balance between state and Federal power.

Mr. Justice Rutledge concurred with the Douglas opinion in order to permit a disposition of the case by a majority of the Court, although he stated that, but for this reason, he would have gone along with Mr. Justice Murphy in upholding the conviction of Screws. Mr. Justice Murphy in a short and clear-cut opinion urged that Section 20 clearly applies to this case, and that Screws was properly convicted. A dissenting opinion states the views of Justices Roberts, Frankfurter, and Jackson. It takes sharp issue with the Douglas opinion on each of the three points referred to above and concludes that the conviction should have been set aside.

While the Screws case leaves intact a certain quantum of Federal power to proceed against state officials under Section 20 of the Criminal Code. the Department of Justice will hardly be able to proceed with confidence and vigor in the prosecution of future cases of this type in view of the confusion and uncertainty which characterize the Court's disposition of the case.

STATE EXCLUSION OF CONSCIENTIOUS OBJECTOR FROM THE PRACTICE OF LAW

The Court's almost unbroken support of freedom of conscience in recent cases is withheld in *Re Summers* (June 11) which sustained the right of Illinois to exclude a conscientious objector from admission to the bar. The law examiners of Illinois did not dispute Summers' general good character or professional fitness. They excluded him solely because his religious scruples against bearing arms "seem inconsistent with the obligation of an attorney at law." The precise ground of this ruling was that Summers could not in good faith take the oath which is required of Illinois lawyers to support the state constitution. This, in turn, was based on the fact that the Illinois constitution contains the clause: "The militia of the state of Illinois shall consist of all able-bodied male persons resident in the state, between the ages of eighteen and forty-five, except such persons as now are, or hereafter may be, exempted by the laws of the United States, or of this State." Summers was willing to take the required oath, but was not permitted to do so. Men have not been drafted into the Illinois militia since 1864 and no one suggested that such action in the future is probable. Thus Summers' status was roughly similar to that of Mrs. Schwimmer, a woman of 50, who was denied citizenship in 1929 (*United States v. Schwimmer,* 279 U. S. 644) because she would not because of conscientious scruples take an oath to bear arms in defense of the United States.

Five justices, speaking through Mr. Justice Reed, held that Summers had not been denied due process of law by any state infringement of the freedom of religion protected by the First Amendment. The opinion granted that the state could not exclude the members of a particular religious sect as such from admission to the bar, but denied that there is such religious discrimination here. It alluded to the fact that such immunities as conscientious objectors enjoy under the Selective Training and Service Act stem from Congressional generosity rather than from constitutional right. Finally, the Court relied upon the *Schwimmer* case and the parallel *Macintosh* case (*United States v. Macin-*

tosh, 283 U. S. 605, 1931), in which conscientious objectors were denied citizenship, as fully supporting the Illinois action here. A vigorous dissent by Mr. Justice Black, with whom Justices Douglas, Murphy, and Rutledge concurred, attacked the exclusion of Summers as a direct assault upon his freedom of religion, and expressed firm agreement with the views of the dissenting justices in the *Schwimmer* and *Macintosh* cases.

THE RIGHT OF ACCUSED PERSONS TO COUNSEL

That the right of an accused person to be represented by counsel remains an important ingredient of due process of law was emphasized in four cases. Three of these were cases in which the accused pleaded guilty. In *Williams v. Kaiser* (Jan. 8, 1945) conviction for a capital crime resulted from the defendant's plea of guilty entered after he had requested and had been refused the aid of counsel. He alleged that he was without funds to employ counsel, and after the court's failure to provide him with counsel he was "compelled to plead guilty." While granting that a conviction based on a plea of guilty ought not lightly to be set aside, the Court emphasized that in a capital case the situation is different. "Only counsel could discern from the facts whether a plea of not guilty to the offense charged or a plea of guilty to a lesser offense would be appropriate." Refusal of counsel in such a case denies due process. A similar result was reached in *House v. Mayo* (Feb. 5) in which the accused pleaded guilty to a burglary charge after being refused by the Court a 24-hour delay in his trial to permit him to consult his attorney who was away. In *Rice v. Olson* (April 23) it was held that the accused who had pleaded guilty to a charge of burglary did not waive his right to counsel at the time of entering his plea because, through ignorance, he did not ask to have counsel assigned, and the court did not inform him of his constitutional rights in the matter. A conviction for murder was set aside in *Hawk v. Olson* (Nov. 13) in which the record showed that the accused had been given no opportunity to consult counsel before the calling of the jury.

DISCRIMINATION AGAINST NEGROES

Akins v. Texas (June 4) held that a Negro was not denied the equal protection of the laws through racial discrimination by being indicted for murder by a grand jury on which only one Negro served. The Court has repeatedly held that a Negro is constitutionally entitled to be indicted and tried by juries from which Negroes have not been excluded because of their race. It has further held that the failure of a community over a long period of time ever to call Negroes for jury service, although there are qualified Negroes available for such service, is evidence of such discrimination. In 1942 the Court set aside the conviction of a Negro in a Texas county because it found he had been the victim of just this kind of racial discrimination. See *Hill v. Texas* (316 U. S. 400). The following year Akins was indicted in this county, and the jury commissioners were careful to see that one Negro was on the panel of 16 from which the grand jury of 12 was drawn, and this Negro also served on the grand jury which indicted Akins. Each of the three jury commissioners stated candidly: "I did not have any intention of placing more than one Negro on the panel." Do these facts spell racial discrimination? The Court held not. It failed to find "purposeful" discrimination. "The mere fact of inequality, in the number selected does not in itself show discrimination. No race or group is entitled to proportional representation in the makeup of juries. In this particular county 15 per cent of the population were Negroes, and on a strict mathematical computation they would be entitled to 1.8552 Negro members on a jury of 12. The presence of only one Negro, therefore, does not prove racial discrimination.

Chief Justice Stone and Mr. Justice Black dissented. Mr. Justice Murphy wrote a sharp dissent declaring:

"Clearer proof of intentional and deliberate limitation on the basis of color would be difficult to produce."

In *Railway Mail Association v. Corsi* (June 18) an unsuccessful effort was made by the organized postal clerks of the United States Railway Mail Service (an A. F. of L. affiliate) to secure immunity from the section of the New York Civil Rights Law which forbids any labor organization in the state to deny any person membership or equal privileges because of race, color, or creed. The due process clause of the Fourteenth Amendment is not violated by this statute since there is no arbitrary abridgment of property rights or liberty of contract. Nor is there denial of equal protection because, while the state regulates membership in an organization of government employees, it does not extend to them the customary privileges of collective bargaining. The state statute in no way conflicts with any Federal interest under the postal power. There is no interference with the mail service, and no burden on the government.

VALIDITY OF STATE LAWS REGULATING LABOR UNIONS

Beginning in 1943, a substantial number of states, many of them in the South, have passed statutes designed to regulate labor unions, and in varying degrees to curb their activities. It was inevitable that some of these would appear to clash either with the more liberal policies embodied in Federal labor statutes or with constitutional prohibitions. Cases are moving to the Supreme Court in which the validity of these state laws is being questioned. Such a case is *Thomas v. Collins* (Jan. 8, 1945) involving a statute passed in Texas in 1943. This act required all labor union organizers operating in the State of Texas to secure from the Secretary of State an organizer's card before soliciting any members for his organization. In order to secure the card he was obliged to give his name, his union affiliations, and his credentials. The Secretary of State had no discretion to refuse to register such an organizer if his application was properly made. The organizer was given a card which he was required to carry with him and to show to any person whom he solicited for membership. The act subjected labor unions to various requirements which were not brought to issue in this case. R. J. Thomas, president of the United Automobile Workers and vice president of C. I. O., went to Texas after the passage of this act for the purpose of addressing a labor union meeting. The fact that Thomas was to speak was widely advertised well in advance. Thomas did not apply for registration as a labor organizer as required by the state statute, but proceeded to address a meeting of about 300 union men. In the course of his address he specifically invited any non-union persons present to join the union, and at the close of the meeting he specifically solicited membership of a particular person, named in the record. All this was done in order to permit a legal test of the validity of the state requirement. Prior to the meeting, a restraining order had been served on Thomas, forbidding him to address the meeting in the capacity of an organizer, and he was subsequently cited for contempt for a deliberate and willful violation of the order.

Five justices produced three opinions holding the Texas statute invalid as an unreasonable interference with freedom of speech. The leading opinion was written by Mr .Justice Rutledge. He emphasized the fact that the meeting addressed by Thomas was entirely orderly and that both the right of free assembly and of freedom of speech were concerned in the case. He rejected the idea that the guarantee of freedom of speech can not be applied to businesses or economic activities. It was admitted that there was no prior censorship of Thomas' speech, nor was any discretionary authority vested in any state officer to deny him the right to register as a labor union organizer. The opinion held, however, that the simple requirement of previous identification can not validly be imposed upon one

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who wishes to exercise his rights under the First Amendment. It would be unconstitutional to forbid Thomas to hold his meeting and make his speech, and it is therefore unconstitutional to punish him for not having previously registered as a condition of the privilege of doing so.

The Rutledge opinion is significant for the clear and unequivocal statement which it contains that the guarantees of the First Amendment—freedom of speech, press, religion, and assembly—occupy preferred status in our scheme of constitutional values. Since this is true, no presumption of validity attaches to any legislation which on its face appears to infringe any of these guarantees. "Any attempt to restrict those liberties must be justified by a clear public interest, threatened not doubtfully or remotely, but by clear and present danger. The rational connection between the remedy provided and the evil to be curbed, which in other contexts might support legislation against attack on due process grounds, will not suffice. These rights rest on firmer foundations. Accordingly, whatever occasion would restrain orderly discussion and persuasion, at appropriate time and place, must have clear support in public danger, actual or impending. Only the gravest abuses, endangering paramount interests give occasion for permissible limitation . . ." A majority of the Court did not agree that the statute conflicted with the provisions of the National Labor Relations Act, and the decision rests, therefore, solely upon the constitutional point just discussed.

Mr. Justice Roberts, with whom the Chief Justice and Justices Reed and Frankfurter concurred, took the position that the registration requirement was a reasonable police regulation which did not interfere with freedom of speech but merely required a paid labor union organizer to identify himself as such.

In *Hill v. Florida* (June 11) a more far-reaching Florida statute was held invalid on the ground of conflict with the National Labor Relations Act. This statute required every person acting as a business agent for a labor union to procure a state license before acting in such capacity. To procure the license he must show that he has been a citizen of the United States for more than ten years, has never been convicted of felony, and is a person of good moral character. The license could then be issued by a special board created for the purpose, not as a routine matter, but in the exercise of its discretion in determining whether the applicant met the standards imposed by the act. Various requirements not here involved were also imposed by the statute upon labor unions. Hill violated the law by refusing to procure a license and an injunction was issued to restrain his further activity as a labor union agent. In a brief opinion by Mr. Justice Black, the Court pointed out that the Wagner Act, both in its history and in its provisions, places peculiarly strong emphasis upon the complete freedom of labor organizations to choose those who shall represent them in collective bargaining. The Florida statute limits this full freedom of choice and is, therefore, in direct conflict with the Federal act. Justices Frankfurter and Roberts dissented.

An Alabama statute of 1943 set up drastic regulations affecting the internal affairs and activities of labor organizations, forbade various kinds of picketing, regulated boycotting and striking, and imposed civil liability and criminal penalties upon unions for violations of the act. Two suits were brought in the Alabama courts to secure declaratory judgments adjudicating the constitutionality of the Alabama statute. These cases were brought to the Supreme Court in *Alabama State Federation of Labor v. McAdory* (June 11) and *Congress of Industrial Relations v. McAdory* (June 11). Speaking in each case through Chief Justice Stone, the Court declined to pass upon the various constitutional issues presented on the ground that they were inappropriate for decision in a declaratory judgment proceeding. The act had not been put into operation; its provisions had not been judicially construed by the state courts, and there were many points upon which the Court could hope to reach no well-considered opinion. The cases were, therefore, dismissed.

ASSOCIATED PRESS VIOLATION OF THE SHERMAN ACT

Nationwide attention was drawn to the Court's decision in *Associated Press v. United States* (June 18) enjoining the enforcement of certain by-laws of the Associated Press because they violated the Sherman Act. The issue in the case had been dramatized by the inability of Marshall Field's recently established newspaper, the *Chicago Sun,* to secure AP membership. The relevant facts are as follows. The AP is a cooperative association incorporated in New York. It has some 1,200 newspaper members, and its business is the collection, assembly, and distribution of news. It is financed by an assessment plan which contemplates no profit to AP. The by-laws prohibited all AP members from selling news to any non-members and set up rules by which membership could be acquired. It was made easy for a paper which does not compete with an AP member to join, but when an applicant for membership would compete with an old AP member its chances of admission were very slim.

In such case the applicant's member competitor could object to the admission. Over this objection the applicant paper could gain membership only by a vote of a majority of all AP members, by relinquishing to its AP competitor any exclusive news or news picture rights it might have, and by paying to AP 10 per cent of "the total amount of the regular assessments received by it from old members in the same competitive field during the entire period from Oct. 1, 1900" to the date of admission. Thus to secure AP privileges in the morning field in Chicago at the time of this suit would cost $416,631.90 and in the evening field, $595,772.31.

A divided Court found these restrictive arrangements to be restraints of trade forbidden by the Sherman Act. Mr. Justice Black wrote the principal opinion. He alluded to the well-established doctrine that AP is engaged in interstate commerce and that its activities are not placed beyond the reach of the Sherman Act because they are cooperative rather than strictly commercial. It was argued that the AP regulations did no more than reserve to the members the products of their own enterprise and ingenuity. This might protect a single newspaper in a policy of exclusion, but the Sherman Act was specifically designed to prevent independent business from combining in a common plan "to reduce their competitors' opportunity to buy or sell the things in which the groups compete." Nor is the AP immune from the prohibitions of the act because its services are not "indispensable."

The statute justifies no such test of "indispensability." It is pointed out that "by the restrictive By-laws each of the publishers in the combination has, in effect, surrendered himself completely to the control of the association in respect to the disposition of news in interstate commerce." To forbid this is not to convert a newspaper into a public utility, with an obligation of common service, but merely to hold that "arrangements or combinations designated to stifle competition cannot be immunized by adopting a membership device accomplishing that purpose." Finally, the opinion rejects the argument that to apply the Sherman Act to the AP abridges the freedom of the press guaranteed by the First Amendment. There is no applicability here of the "clear and present danger" test which the courts have used to protect the freedom to speak, write, and publish. The clear and present doctrine provides "no shield for business publishers who engage in business practices condemned by the Sherman Act." "Freedom to publish is guaranteed by the Constitution, but freedom to combine to keep others from publishing is not." The Court, therefore, affirmed the decree of the lower court enjoining the continued enforcement by AP of its present restrictions on applications for membership.

In a concurring opinion Mr. Justice Douglas emphasized that the decision does not direct AP to serve all applicants, but merely to cease discriminating against competitors of its members in the same field or territory. A concurring opinion by Mr. Justice Frankfurter emphasized the peculiar interest which the public has in newspapers and concluded that the AP by-laws are not merely restraints on commerce but also "offend the basic functions which a constitutionally guaranteed free press serves in our nation." Mr. Justice Roberts dissented in an opinion in which Chief Justice Stone concurred, and Mr. Justice Murphy dissented separately.

LABOR UNIONS AND THE SHERMAN ACT

In *Hunt v. Crumboch* (June 18) the Court held in a five-to-four opinion by Mr. Justice Black that a labor union does not violate the Sherman Act because it refuses to admit to membership the employees of a trucking company engaged in interstate commerce, and by closed shop agreements with its competitors drives the company out of business. However, in *Allen Bradley Co. v. Local Union No. 3* (June 18), the Court held that a union did violate the Sherman Act when it combined with its employers and with the manufacturers of goods to restrain competition in, and monopolize the marketing of, such goods. Here an electrical workers' union had made closed-shop agreements with the makers and sellers of electrical equipment in metropolitan New York which made it completely impossible for competitors to break into this market. "We think Congress never intended that unions could, consistently with the Sherman Act, aid nonlabor groups to create business monopolies and to control the marketing of goods and services."

THE FAIR LABOR STANDARDS ACT

Three cases arose under the Fair Labor Standards Act. In *Western Union Telegraph Co. v. Lenroot* (Jan. 8, 1945) the Court held the child labor provisions of the act inapplicable to the children employed by the company as messenger boys. The statute forbids any producer, manufacturer, or dealer to ship in commerce any goods produced in an establishment in which child labor is employed. While telegraphic messages are "subjects of commerce" and hence "goods" within the meaning of the act, the Court concluded that the company does not "produce" these telegraphic messages, nor does it "ship" them in the sense in which the word "ship" is commonly used. In *Gemsco v. Walling* (Feb. 26) it is held that the Fair Labor Standards Act authorizes the prohibition of industrial homework when this is necessary in order to make effective a minimum wage order for an industry. In *Jewell Ridge Coal Corporation v. Local No. 6167, U. M. W.* (May 7) the Court, following an earlier ruling made in the iron mining industry, held that under the Fair Labor Standards Act bituminous coal miners were entitled to be paid for the time spent "travelling from the portals to their usual places of work and return." This "portal-to-portal pay" issue had loomed large in the dispute in the coal industry which had created a serious threat of a strike.

FULL FAITH AND CREDIT AS APPLIED TO DIVORCES

It will be recalled that in 1942 the Court held in the case of *Williams v. North Carolina* (317 U. S. 287) that the full faith and credit clause of the Constitution required North Carolina to recognize the validity of Nevada divorces granted to a man and wife who had left North Carolina and gone to Nevada in order to secure the divorce, even though the two defendant spouses had neither been served with summons nor put in an appearance. In this case the two divorced persons remarried in Nevada and returned to North Carolina where they were prosecuted for bigamous cohabitation. This case left open the important question whether North Carolina could refuse recognition to the Nevada divorces, not on the ground just mentioned, but on the ground that the courts of Nevada did not have jurisdiction over the parties because of the inadequate and fraudulent character of their domicile in Nevada.

This question was raised in *Williams v. North Carolina* (May 21), and a majority of the Court in an opinion written by Mr. Justice Frankfurter held that under the facts disclosed by the record North Carolina was justified in concluding that Nevada did not have jurisdiction over the parties, and could not, therefore, issue a decree of divorce which North Carolina was bound to respect. It sustained the conviction of Williams and his wife on the criminal charge already mentioned. The opinion emphasized that the obligation of the states of the Union to accord full faith and credit to a judicial decree of any other state arises only if that state has jurisdiction to issue the decree. The question whether this jurisdiction does or does not exist can not be conclusively settled by the state court asserting the jurisdiction. This jurisdiction is subject to impeachment in the Supreme Court. Since this is true, the existence of *bona fide* domicile in Nevada became the decisive issue in this case and the Court agreed with the North Carolina court that there was no such domicile. The record showed that petitioners, long-time residents of North Carolina, went to Nevada, where they stayed at an auto court for transients, filed suits for divorce as soon as the Nevada law permitted, married one another as soon as the divorces were obtained, and promptly returned to North Carolina to live. Under these circumstances North Carolina was fully entitled to draw the inference that Williams and his wife had never abandoned their domiciles in North Carolina and were, therefore, not lawfully divorced by the Nevada decree.

A concurring opinion by Mr. Justice Murphy, joined by the Chief Justice and Mr. Justice Jackson, registers a marked degree of sympathy for the unfortunate couple now finally convicted of crime "for acts which they probably committed in reliance upon advice of counsel and without intent to violate the North Carolina statute." In the case of Justices Rutledge, Black, and Douglas, however, this concern for the rights of the convicted man and wife led to a vigorous dissent. Mr. Justice Black urged that the conviction denies due process of law, since criminality is imposed on grounds which could not have been foreseen by those who were punished. While ignorance of the law excuses no man "it is quite a different thing however to sentence people to prison for lacking the clairvoyant gift of prophesying when one judge or jury will upset the findings of fact made by another." It is generally agreed that the first Williams case injected a degree of confusion into the legal status of out-of-state divorces. It is not easy to see that the second Williams case has done much to clear up that confusion. There can be little doubt that if the doctrine is rigidly adhered to and aggressively enforced, a good many thousand people who have secured Nevada divorces and subsequently remarried are presently liable to criminal prosecution.

I. AMERICAN POLITICAL HISTORY

FEDERAL ADMINISTRATIVE AGENCIES

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GENERAL

A feature of the record of administrative agencies during 1945, was the repeated use made by the President of Federal departments to operate industries in such a manner as was deemed necessary for the successful prosecution of the war. The first typical instance of this practice was the order of the President to the Secretary of War authorizing him to take possession of the properties of the Cleveland Electric Illuminating Co. together with any real and personal property wherever situated and to operate such property in such a manner as he deemed necessary. The possession of the property was to be relinquished within 60 days after the Secretary should determine that the possession was no longer necessary for the prosecution of the war. The order was issued by President Roosevelt on Jan. 12, 1945.

Another feature of the year was the use of the military commission, an executive or administrative tribunal, to apply the military law of the United States to cases and situations arising from the war.

MILITARY COMMISSIONS

On Jan. 11, 1945, the President as Commander in Chief of the Army and Navy in pursuance of the Constitution and Statutes of the United States and, particularly, the Thirty-eighth Article of War ordered:

1. That all persons who are subjects, citizens or residents of any nation at war with the United States or who give obedience to or act under the direction of any such nation, and who during the time of war enter or attempt to enter the United States or any of its territories or possessions, through coastal or boundary defences, and are charged with committing or attempting to commit sabotage, espionage, hostile or warlike acts, or any violations of the law of war, shall be subject to the law of war and to the jurisdiction of the military tribunals. The commanding generals of the several service and defense commands in the United States and Alaska, under the supervision of the Secretary of War, were empowered to appoint military commissions for the trial of such persons.

2. Every military commission established for the trial of the persons indicated was empowered and required, as occasion demanded, to make rules for the conduct of its proceedings, consistent with the powers of military commissions under the Articles of War, such as it should deem necessary for a full and fair trial of the matters before it. Such evidence should be admitted as would, in the opinion of the president of the commission, have probative value to a reasonable man. The concurrence of at least two thirds of the members of the commission present at the time the vote was taken should be necessary for a conviction or sentence. The provisions of Article 70 of the Articles of War, dealing with investigation and preliminary hearings should not be applied to the proceedings. The record of the trial, including the judgment or sentence, should be promptly reviewed according to the procedures established under Article 50 of the Articles of War.

The policy outlined in the order seems to be an extension of the procedure used by President Roosevelt during the first year of participation in the war when he created a military commission to try the persons who landed on our coast to carry out a mission of sabotage and destruction.

PROSECUTION OF WAR CRIMES

By executive order of May 2, 1945, President Truman appointed Associate Justice Robert H. Jackson to act as the representative of the United States and as its Chief Counsel in preparing and prosecuting charges of atrocities and war crimes against such leaders of the European Axis powers and their principal agents and accessories as the United States might agree with any of the United Nations to bring to trial before an international military tribunal. Our representative is to serve without additional compensation but he will receive such allowances for expenses as may be authorized by the President. Justice Jackson was authorized to select and recommend to the President, or to the head of any executive department or agency, necessary personnel to assist in the performance of his duties. The head of each executive department, independent establishment, or agency was authorized in the performance of the duties of the representative named to employ such personnel and make such expenditures within the limits of appropriations now or hereafter available for the purpose as may be deemed necessary to carry out the purposes of the President's order. The heads of departments were permitted to make available, assign or detail for duty with the representative named such members of the armed forces and other personnel as might be requested for such purposes.

The representative named was authorized to cooperate with, and receive the assistance of any foreign government to the extent deemed necessary by him to accomplish the purposes of the President's order.

REPRESENTATION ON INTERNATIONAL MILITARY TRIBUNAL

In accordance with the provisions of the Charter of the International Military Tribunal established by the Government of the United States, the Provisional Government of the French Republic, the Government of United Kingdom of Great Britian and Northern Ireland, and the Government of the Union of Soviet Socialist Republics for the trial and punishment of major war criminals of the European Axis and pursuant to their agreement of Aug. 8, 1945, President Truman appointed Francis Biddle of Pennsylvania to represent the United States on the International Military Tribunal and John J. Parker of North Carolina to be the alternate member of the Tribunal.

The Member of the United States will receive such compensation and expense allowances as the Secretary of State may determine. The Alternate Member will receive no salary but the Secretary of State will determine what expense allowances shall be paid to him.

The Secretary of State, the Secretary of War, the Attorney General, and the Secretary of the Navy were authorized to provide appropriate assistance to the Member and the Alternate in the performance of their duties and might detail personnel, including members of the armed forces, as might be requested for the purpose.

CHIEF COUNSEL FOR PROSECUTION OF JAPANESE WAR CRIMES

By executive order of Nov. 29, 1945, President Truman, in order to enable Joseph B. Keenan as Chief Counsel in the preparation and prosecution of charges of war crimes against the major leaders of Japan and their principal agents and accessories, authorized him to select and recommend to the President or the head of any executive department, independent establishment, or other Federal agency, necessary personnel to assist him in his duties. The heads of departments, independent establishments and agencies were authorized to assist the Chief Counsel and to employ such personnel and make such expenditures within the appropriations now or hereafter available as might be deemed necessary. As many of the personnel of the armed forces as might be requested by the Chief Counsel were to be detailed to assist. He was also authorized to cooperate with and receive the assistance of any foreign government to the extent deemed necessary by him.

COURT MARTIAL CASES

On May 26, 1945, by reason of the increasing burdens upon the President owing to the pressure of war conditions, he ordered as follows: that there be transferred and delegated to each of the following, namely, the Secretary of War and the Under Secretary of War, the functions, duties, and powers of confirmation vested in the President under Article of War 48, together with the power of commutation and all the functions, duties, and powers vested in the President by Articles 49, 50, 50½, 51 and 52 in all cases of sentences except those extending to death; and to each of the following, namely, the Secretary of the Navy and the Under Secretary of the Navy, all functions, duties, and powers of confirmation vested in the President under Article 53 of the Articles for the Government of the Navy, in all cases of sentences except those extending to the loss of life.

AMENDMENT OF PUBLIC LAND ORDERS

By executive order of Feb. 28, 1945, it was decreed by the President that a long list of executive and public land orders, by which more than 13,000,000 acres of public lands had been withdrawn and reserved for the use of the military and other branches of the Government for purposes incident to the various phases of the national emergency and the prosecution of the war, be amended by adding to each of the orders the following paragraph: "The jurisdiction granted by this order shall cease at the expiration of the six month period following the termination of the unlimited national emergency declared by Proclamation No. 2487 of May 27, 1941. Thereupon jurisdiction over the lands thereby reserved shall be vested in the Department of the Interior or any other department or agency of the Federal government according to their respective interest then of record. The lands, however, shall remain withdrawn from appropriation as herein provided until otherwise ordered."

OFFICE OF INTER-AMERICAN AFFAIRS

By executive order of March 23, 1945, the name of the office of Co-ordinator of Inter-American Affairs, within the Office for Emergency Management of the Executive Offices of the President, was changed to the Office of Inter-American Affairs. The order provides that there shall be at the head of the office a director, appointed by the President, who shall perform his functions under the direction of the President and in conformity with the foreign policy of the United States as defined by the Secretory of State through the Assistant Secretary of State in charge of relations with the American Republics. He shall be charged with all duties and responsibilities hitherto performed by the co-ordinator. The new director receives a salary of $10,000 per annum plus necessary transportation, subsistence, and other expenses incidental to the performance of his duties. Wallace K. Harrison was appointed Director of the Office of Inter-American Affairs.

ECONOMIC STABILIZATION BOARD

By executive order of April 3, 1945, the Federal Loan Administrator and the War Food Administrator were designated as additional members of the Economic Stabilization Board which was created Oct. 15, 1942.

NATIONAL WAR LABOR BOARD

The executive order establishing the National War Labor Board was amended April 4, 1945 by increasing the number of public members from four to eight. Not more than four of such public members were to vote on any one matter. The order of Jan. 24, 1942, providing for the appointment of associate members of the Board, and the order of Nov. 20, 1943, providing for the appointing of alternate public members of the Board were revoked.

By executive order of Dec. 31, 1945, President Truman abolished the National War Labor Board and created in its stead a six-man National Wage Stabilization Board. The six-man board will be composed of a chairman and vice chairman representing the public, two members representing labor, and two representing industry. W. Willard Wirtz, named to head the Board, is the former general counsel of the War Labor Board. Sylvester Garrett, formerly regional chairman of the Philadelphia War Labor Board, was named vice chairman. Carl J. Shipley is the former CIO member of the War Labor Board, and Robert J. Watts is the American Federation of Labor's international representative. Management's representatives are: R. Randall Irwin, who is affiliated with the Lockheed Aircraft Corporation, and Earl Cannon, who was also an industry member of the War Labor Board, is a Wisconsin trucking company official.

TRANSFER OF WATER AND SEWAGE SYSTEMS TO PANAMA

As a result of discussions between the Government of the United States and the Government of Panama, pursuant to an exchange of notes accessory to the treaty between the two countries of March 2, 1936 and pursuant to a joint resolution of Congress of May 3, 1943, which authorized the transfer by the President of the United States to the Republic of Panama of all right, title, and interest to water and sewage systems installed by the United States in the cities of Panama and Colon, with certain provisions and reservations, President Truman directed the Governor of the Panama Canal Zone to make the transfer.

TERMINATION OF THE OFFICE OF CIVILIAN DEFENSE

By executive order of June 4, 1945, the Office of Civilian Defense, established May 20, 1941, was terminated. Except in so far as the functions were transferred, the Office of the Director and all the powers and functions were abolished. All protective property of the Office was transferred to the Department of Commerce. All functions hitherto vested in the Director incident to the storage, care, transportation, and disposition of such property were transferred to the Secretary of Commerce and were to be exercised by him in accordance with the Surplus Property Act of 1944 and the regulations and designations of the Surplus Property Board. Detailed directions were given for the liquidation of the affairs of the Office.

RELEASE OF SCIENTIFIC INFORMATION

By executive order of June 8, 1945, the Director of War Mobilization and Reconversion was authorized to review all scientific and technical information which (1) has been or may hereafter be developed by or for, or with the funds of any department or agency of the Government, and (2) is now, or may hereafter be classified as secret, confidential, restricted or by other comparable designation, or otherwise withheld from the public for the purposes of the national military security.

All the departments and agencies were required to furnish the Director all information that he might request as essential to the performance of his duties. There was excluded from the order any scientific information which the President should declare to be in a closed field of information.

The Director, in determining what information should be released, was required to follow a carefully designed procedure to safeguard the security of the American public.

COMMISSIONED CORPS OF THE PUBLIC HEALTH SERVICE

By executive order of June 12, 1945, the commissioned corps of the Public Health Service was declared to be a military service and a branch of the land and naval forces of the United States during the period of the War. The Commissioned Corps of the Service was to be subject for the duration to the Articles for the Government of the Navy.

TERMINATION OF WAR FOOD ADMINISTRATION

By executive order of June 29, 1945, the War Food Administration was terminated and its functions were transferred to the Secretary of Agriculture. The Office of the Administrator with all its records, personnel, funds and agencies were transferred to be administered in the future in a manner determined by the Secretary of Agriculture. He was clothed with authority to confer on any person or persons to whom he might make delegations, under the transfer, the power to make further delegations to any person or persons in the Department of Agriculture. All orders, directives, rules, and regulations relating to any matter within the scope of the authority of the War Food Administrator were to remain in full force and effect unless modified or revoked by the Secretary.

PRESIDENT TRUMAN'S TRANSITION AND RECONVERSION POLICY

By executive order of Aug. 18, 1945, President Truman laid down the guiding policies of all departments and agencies of the Government concerned with the problems arising out of the transition from war to peace. The departments and agencies were to assist in the maximum production of goods and services required to meet domestic and foreign needs; (1) by assuring assistance in making available materials and supplies required for the production of such goods and services; (2) by providing assistance to the conversion and utilization of war plants and facilities both publicly and privately owned; and (3) by providing effective job placement assistance to war workers and returning servicemen and women.

They were to continue stabilization of the economy as authorized and directed by the Emergency Price Control Act of 1942, as amended, and the Stabilization Act of 1942, as amended, (1) by using all powers conferred therein and all other lawful means to prevent inflation or deflation, and (2) while so doing by making whatever modifications in controls over prices, wages, materials, and facilities are necessary for an orderly transition from war to peace. Finally, they were to move as rapidly as possible without endangering the stability of the economy toward the removal of price, wage, production and other controls toward collective bargaining and the free market.

During the transition to a free economy, the Secretary of Agriculture, the Federal Loan Administrator, and the Director of Economic Stabilization should take all measures authorized by law which might be necessary to prevent any collapse in values or discouragement of the full and effective use of productive resources.

The Price Administrator, and in the exercise of his price responsibilities, the Secretary of Agriculture, subject to the directives provided by law by the Economic Stabilization Director, should take all necessary steps to assure that the cost of living and the general level of prices should not rise. Subject to such authority, the Price Administrator and the Secretary of Agriculture were authorized to make such adjustments in existing price controls as were necessary to remove gross inequities which would interfere with an effective transition to a peacetime economy. In order that any price increases found necessary for these purposes should not result in an increase in the cost of living, the Price Administrator and the Secretary of Agriculture should, so far as reasonably practicable and necessary for the purpose, see that such price increases should not cause increases at later levels of production and distribution. They should improve and tighten controls in those fields which are important in relation to production costs or the cost of living and in which, in their judgment, the controls have hitherto been ineffective.

The National War Labor Board and such other agencies as might be designated by the Director of Economic Stabilization, with the approval of the Director of War Mobilization and Reconversion, were authorized to provide that employers might, through collective bargaining with duly certified and recognized representatives of employees, or, if there were no such representatives, by voluntary action, make wage and salary increases without the necessity of obtaining approval therefor, upon the condition that such increases should not be used in whole or part as the basis for seeking an increase in price ceilings or resisting the otherwise justifiable reductions in price ceilings.

The War Production Board should move as rapidly as feasible, without endangering orderly reconversion and the stabilization of the economy, to free business from its controls. During the transition it should use all of its powers to expand the production of materials which are in short supply, limit the manufacture of products for which the materials or facilities are insufficient, control the accumulated inventories so as to avoid speculative hoarding and unbalanced distribution, which would curtail total production, grant priority assistance to break bottlenecks which would impede the reconversion process, facilitate the fulfillment of relief and other essential export programs, and allocate scarce materials or facilities necessary for the production of low priced items essential to the continued success of the stabilization program.

TERMINATION OF THE OFFICE OF WAR INFORMATION

On Sept. 1, 1945, there were transferred to and consolidated in an Interim International Information Service in the State Department, those functions of the Office of War Information and those informational functions of the Office of Inter-American Affairs which are performed abroad or which consist of and are concerned with informing the people of other nations on matters in which the United States has an interest.

TERMINATION OF WAR REFUGEE BOARD

By executive order of Sept. 14, 1945, the War Refugee Board, established Jan. 22, 1944, in the Executive Offices of the President, was terminated. The Secretary of the Treasury was directed to liquidate all its activities and obligations and wind up its affairs.

TERMINATION OF THE OFFICE OF FISHERY COORDINATION

By executive order of Oct. 29, 1945, the Office of Fishery Coordination was terminated. The Secretary of the Interior, acting through the Fish and Wild Life Service or any other agency of the Department of the Interior, designated by the Secretary, was authorized to wind up the affairs of the Office.

TERMINATION OF THE OFFICE OF STRATEGIC SERVICES

By executive order of Sept. 20, 1945, there were transferred to the Department of State the functions of the Research and Analysis Branch and the functions of the Presentation Branch of the Office of Strategic Services, excluding such functions as are performed within Germany and Austria. The functions of the Director of Strategic Services and of the United States Joint Chiefs of Staff, relating to the functions transferred, were also placed with the Department of State. All functions of the Office of Strategic Services, not transferred to the Department of State, were transferred to the Department of War.

TRANSFERS TO THE DEPARTMENT OF LABOR

By executive order of Sept. 19, 1945, all the functions of the Chairman of the War Manpower Commission, together with all the functions, agencies, officers, employees, records, property, and funds of the Commission, were transferred to the Secretary of Labor. The National War Labor Board and all of its functions, officers, employees, records, property, and funds were transferred to the Department of Labor to be governed by such policies as the Secretary of Labor should prescribe. The Retraining and Reemployment Administration, established by the War Mobilization and Reconversion Act of 1944, was also transferred to the Department of Labor. The United States Employment Service and all the functions in the Department relating to employment services, the National War Labor Board and its functions, and the Retraining and Reemployment Administration were established in the Department of Labor to be administered as organizational entities of that Department.

TERMINATION OF FOREIGN ECONOMIC ADMINISTRATION

By executive order of Sept. 27, 1945, the Foreign Economic Administration was terminated and its functions distributed among several departments and agencies.

There were transferred to the Department of State all the functions of the Administration with respect to: (a) the Administration of the Act of March 11, 1941, entitled "An Act further to promote the defences of the United States and for other purposes"; (b) the participation by the United States in the United Nations Relief and Rehabilitation Administration; (c) activities in liberated areas with respect to supplying the requirements of and securing materials in such areas; (d) the gathering, analysis, and reporting of economic and commercial information, in so far as such functions are performed abroad; (e) the planning of measures for the control of occupied territories; and (f) the administration and allocation of certain funds.

There were transferred to the Reconstruction Finance Corporation the following: (a) the Rubber Development Corporation, the Petroleum Reserves Corporation, the U. S. Commercial Company with all their functions, capital stock, assets, and liabilities. The board of directors of the Reconstruction Finance Corporation may reconstitute the boards of directors of the transferred corporations.

There were transferred to the Department of Commerce all the functions with respect to: (a) export control; (b) the Technical Industrial Intelligence Committee; and (c) the facilitation of trade, including functions affecting foreign trade, domestic commerce, and the Clearing Office for Foreign Transactions and Reports.

There were transferred to the Department of Agriculture the functions of the Office of Foreign Programs and all other functions of the Administration with respect to food, food machinery, and food facilities.

For the purpose of unifying the disposition of foreign property, owned by the United States in foreign areas under a single agency acting in conformity with the foreign policy of the United States and with the Surplus Property Act of 1944, there were transferred to the Department of State all the functions of the Army and Navy Liquidation Commission and all the functions of the War and Navy Departments relating to the disposition abroad of property captured from the enemy.

CIVILIAN PRODUCTION ADMINISTRATION

By executive order of Oct. 4, 1945, the War Production Board, established Jan. 16, 1942, was terminated, and all agencies, employees, property, and funds were transferred to a new Civilian Production Administration which was established in the Office for Emergency Management in the Executive Offices of the President. At the head of the new Board is to be an administrator appointed by the President with a salary of $12,000 per annum, unless Congress shall otherwise provide. The Administrator must exercise his functions and powers in accordance with the general policies established by the Director of War Mobilization and Reconversion.

The functions and powers transferred are to be exercised to further a swift and orderly transition from wartime production to a maximum peacetime production free from wartime controls, with a regard for stability of prices and costs, and to that end shall be utilized: (a) to expand the production of materials which are in short supply; (b) limit the manufacture of products for which materials and facilities are insufficient; (c) control the accumulation of inventories so as to avoid speculative hoarding and unbalanced distribution which would curtail total production; (d) grant priority assistance to break bottlenecks which would impede the reconversion process; (e) facilitate the fulfillment of relief and other essential export programs; and (f) allocate scarce materials and facilities necessary for the production of low priced items essential to the continued success of the stabilization program of the Federal Government.

TERMINATION OF OFFICE OF SURPLUS PROPERTY

By executive order of Oct. 19, 1945, the Office of Surplus Property in the Department of Commerce was terminated, and all the personnel, records, property, contracts, obligations, and funds relating primarily to surplus property disposal functions were placed under the Reconstruction Finance Corporation.

TRANSFER OF SHIPBUILDING STABILIZATION COMMITTEE

By executive order of Nov. 15, 1945, the Shipbuilding Stabilization Committee of the Civilian Production Administration, established by administrative order of the Chairman of the War Production Board, was transferred to the Department of Labor.

TRANSFER OF SMALLER WAR PLANTS CORPORATION

By executive order of Dec. 27, 1945, with certain enumerated exceptions, all the functions of the Smaller War Plants Corporation were transferred to the Reconstruction Finance Corporation. All functions not transferred to the Reconstruction Finance Corporation were transferred to the Department of Commerce.

REORGANIZATION OF THE NAVY DEPARTMENT

By executive order of Oct. 3, 1945, the following directives were given to the Secretary of the Navy:

1. In order to provide for the effective integration of its activities the Navy Department shall hereafter be organized to take cognizance of the major grouping of military matters, general and administrative matters, and business and related industrial matters. The structure of the organization to accomplish this purpose shall be such as the Secretary of the Navy may deem appropriate and necessary with due regard for the necessity for delegation and decentralization.

2. The Secretary of the Navy shall prescribe such duties for the Under Secretary of the Navy and the Assistant Secretaries of the Navy as may be appropriate and necessary to effectuate the provisions of the Order.

3. The Marine Corps is an integral part of the naval establishment. In time of war or when the President shall so direct the Coast Guard is a part of the naval establishment.

4. The Chief of Naval Operations: (a) shall be the principal naval advisor to the President and to the Secretary of the Navy on the conduct of war and principal adviser to the Secretary of the Navy on the conduct of the activities of the naval establishment; (b) shall have command of the operating forces comprising the several fleets, sea going forces, and the related shore establishments of the Navy, and shall be responsible to the Secretary of the Navy for their use in war and plans and preparations for their readiness for war; (c) shall be charged, under the direction of the Secretary of the Navy, with the preparation, readiness, and logistic support of the operating forces, comprising the several fleets, sea going forces, sea frontier forces, district and other forces and related shore establishments of the Navy and with their coordination.

5. The Staff of the Chief of Naval Operations shall be composed of such members of the Vice Chiefs of Naval Operations, Deputy Chiefs of Naval Operations, Assistant Chiefs of Naval Operations, a naval Inspector General, and such other officers as may be deemed by the Secretary of the Navy to be appropriate and necessary for the performance of the duties prescribed for the Chief of Naval Operations.

6. There shall be in the Navy Department (a) an office charged with the coordination of the activities of bureaus and offices to effectuate common policies of procurement, contracting and production of material throughout the naval establishment, and (b) an office charged with the coordination of naval research, experi-

mental tests and development activities, and such related duties as may be appropriate.

7. The bureaus and offices of the Navy Department, in addition to the chiefs of such bureaus and offices, shall be staffed by such officers, including a deputy and one or more assistant chiefs.

8. During the temporary absence of the Secretary of the Navy, the Under Secretary of the Navy, the Assistant Secretary of the Navy, the Assistant Secretary of the Navy for Air, and the Chief of Naval Operations, in that order, shall be next in succession to act as Secretary of the Navy. In the absence of the Chief of Naval Operations, the Vice and Deputy Chiefs of Naval Operations shall be next in succession in accordance with relative rank.

ELECTIONS OF 1945

By Thomas N. Hoover
Professor, Ohio University

Virginia.—In the year of 1945, there were but few elections of any significance in the United States. Only one governor was elected and that in the Democratic state of Virginia. With but slight opposition, Governor Colgate W. Darden, Jr., the Democratic candidate, was re-elected. Virginia thus remains in the solid south.

New York City.—The election of a mayor to succeed the colorful Fiorello LaGuardia was the principal attraction. The Democratic candidate was William O'Dwyer; Jonah J. Goldstein was the Republican candidate; Newbold Morris, LaGuardia's choice, ran on the No Deal ticket. O'Dwyer was elected, and New York City remains Democratic.

Detroit.—Perhaps the most important election of the year, as indicating political trends, was that in Detroit, Mich. The Democratic candidate for mayor was Richard T. Frankensteen, an outstanding labor leader. The Republicans nominated Mayor Edward J. Jeffries for another term. Jeffries was re-elected with a vote of 274,435 to 216,917 for his opponent.

Montana.—In the House of Representatives, the Republicans replaced a Democrat from the State of Montana. The district had been Democratic for many years.

Dewey and the Japanese Code.—The few straws in the wind in 1945 would indicate a turn away from the New Deal. Since the elections, several other events have happened that will perhaps have political reactions in the 1946 elections. One of these, is a disclosure of the fact that the Administration knew the Japanese code throughout most of the year of 1941. Governor Dewey, at the request of the Chief of Staff, did not permit the use of the Pearl Harbor responsibility in the campaign.

President Truman and Congress.—President Truman, in January, 1946 gave Congress a severe scolding for refusing to pass some very questionable legislation. Unless the breach between the President and the Democratic Congress is healed before November, there seems little chance of the Democrats retaining control of the House of Representatives.

PERIODICAL PUBLICATIONS

American Mercury
570 Lexington Ave., New York City.
American Political Science Review
Harris Hall, Northwestern University, Evanston, Ill.
American Spectator
683 Broadway, New York City.
Commonweal, The
386 Fourth Ave., New York City.

Congressional Digest
2131 LeRoy Place N.W., Washington, D. C.

Current History
65 Fifth Ave., New York City.

Journal of Political Economy
5750 Ellis Ave., Chicago.

Nation, The
20 Vesey St., New York City.

New Republic, The
40 East 49th Street, New York City.

Newsweek
152 West 42nd Street, New York City.

Political Science Quarterly
Columbia University, New York City.

Time Weekly Newsmagazine (The)
9 Rockefeller Plaza, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

American Antiquarian Society, Salisbury and Park Ave., Worcester, Mass.

American Baptist Historical Society, Upland Avenue, Chester, Pa.

American Catholic Historical Association, Catholic University, Brookland Station, Washington, D. C.

American Historical Assn., Library of Congress Annex, Study Room 274, Washington, D. C.

American Irish Historical Society, 991 Fifth Ave., New York City.

American Jewish Historical Society, Broadway and 122nd Street, New York City.

American Numismatic Society, 156th Street and Broadway, New York City.

American Scenic and Historic Preservation Society, 287 Convent Avenue, New York City.

American Society of Church History, 5757 University Ave., Chicago, Ill.

Canadian Historical Assn., Ottawa, Canada.

Freethinkers of America Inc., 370 West 35th Street, New York City.

Hispanic Society of America, Broadway between 155th and 156th St., New York City.

Holland Society of New York, 90 West Street, New York City.

Huguenot Society of America, 122 East 58th Street, New York City.

Methodist Historical Library, 150 Fifth Ave., New York City.

Mississippi Valley Historical Assn., Cedar Rapids, Iowa.

New England Historic Genealogical Society, 9 Ashburton Place, Boston, Mass.

Presbyterian Historical Society, 520 Witherspoon Building, Philadelphia, Pa.

Proportional Representation League, 1417 Locust St., Philadelphia, Pa.

Society for the Preservation of New England Antiquities, 141 Cambridge St., Boston, Mass.

Steuben Society of America, 369 Lexington Ave., New York City.

Thomas Paine National Historical Assn., North Ave., New Rochelle, N. Y.

United States Catholic Historical Society, 346 Convent Ave., New York City.

Woodrow Wilson Foundation, The, 8 West 40th Street, New York City.

POLITICAL

Academy of Political Science, Fayerweather Hall, Columbia University, New York City.

American Academy of Political and Social Science, 3457 Walnut St., Philadelphia, Pa.

American Political Science Assn., 105 Harris Hall, Northwestern University, Evanston, Ill.

League for Industrial Democracy, 112 E. 19th Street, New York City.

Women's National Democratic Club Inc., 50 West 45th St., New York City.

Women's National Republican Club, 3 West 51st Street, New York City.

DIVISION II

INTERNATIONAL AFFAIRS AFFECTING THE UNITED STATES

THE UNITED STATES IN WARTIME AND AFTER

By Winifred N. Hadsel
Research Associate, Foreign Policy Association

QUESTIONS OF INTERNATIONAL COOPERATION

While a number of nations continued during 1945 to express doubts about the willingness of the United States to give effective aid in solving the difficult political and economic problems arising out of the war, the Administration in Washington attempted to show that this country had overcome its classic isolationism and was ready to support cooperative international reconstruction measures.

To insure approval at home for this program of continued collaboration with the other United Nations, both President Roosevelt and President Truman attempted to persuade the American people that it would be folly to let divergences among the Big Three lead to rejection of international cooperation. In his annual message to Congress on the state of the union, on Jan. 6, 1945, President Roosevelt declared that "perfectionism, no less than isolationism or imperialism or power politics may obstruct the paths to international peace." President Truman, in his Navy Day speech on Oct. 27—his major 1945 pronouncement on foreign policy—sounded a similar note. The greatest danger to peace, he stated, was the threat of disillusionment and a loss of faith in the effectiveness of international cooperation. Lest this threat materialize, the President announced that "our American policy is a policy of friendly partnership with all peaceful nations, and of full support for the United Nations Organization."

In order to carry out this stated policy of continued partnership with the other Allies, the United States participated during 1945 in three types of international action: (1) conferences among the American Republics at Mexico City (see U. S. and Latin America) and all the United Nations at San Francisco (see the San Francisco Conference and the United Nations Charter) for the purpose of creating and establishing international machinery designed to maintain peace and security; (2) meetings of the Big Three at Yalta and Potsdam, the first session of the Council of Foreign Ministers at London, and the conference of the Foreign Ministers of Russia, Britain and the United States at Moscow; and (3) sessions of United Nations organizations charged with responsibility for immediate reconstruction tasks and long-range economic and social cooperation.

THE CRIMEA CONFERENCE (YALTA)

One of the chief features of the agreement reached by Roosevelt, Stalin, and Churchill at the Crimea Conference, held at Yalta Feb. 5-12, was the Declaration on Liberated Europe. According to this Declaration, the United States, Russia, and Britain agreed they would henceforth act in concert whenever they intervened politically in the liberated and former Axis satellite countries and would consult with other Allied governments concerned whenever matters of direct interest to them came under consideration.

The Yalta plans for joint Allied action in liberated areas were designed to end the rivalries and disagreements that had arisen among the major Allies as a result of unilateral interventions on their part in various European nations. Poland and Greece, which seemed early in 1945 to be virtually controlled by Russia and Britain respectively, had raised particularly acute problems among the Big Three.

The appearance of "zones of influence" in Europe was directly traceable to the decision made by the Big Three at Teheran in December 1943 whereby specific geographical areas of the German-occupied continent were assigned to the Russian, British, and American armies for the purposes of liberation or occupation. For the U.S.S.R., this arrangement apparently entailed dominance in Finland, Poland, Rumania, Hungary, Bulgaria, and Czechoslovakia, and predominant but not exclusive influence in Yugoslavia. Western Europe, on the other hand, fell into the Anglo-American area of action, and Greece reportedly belonged in the British sphere, while Italy was under predominantly British control, with some American participation. Germany and Austria, located between the two main spheres of influence outlined at Teheran, were to be entered and occupied by the troops of Russia, Britain, the United States, and France. This virtual division of Europe, which was agreed upon at Teheran for military purposes, posed important political problems among the Allies as the German armies were driven back and the great powers discovered that the overlapping of their interests made the existence of exclusive spheres of influence a source of friction among themselves.

At Yalta, President Roosevelt took the initiative in suggesting a plan that would substitute joint Allied action for the unilateral measures of Teheran in tackling the problems of the liberated and former satellite nations and aiding the peoples of Europe "to solve by democratic means their pressing political and economic problems." During the interim period between war and peace the Big Three agreed to intervene jointly in the affairs of liberated nations for four main purposes: (1) to establish conditions of internal peace; (2) to carry out emergency relief measures for distressed peoples; (3) to form broadly representative interim governments pledged to the earliest possible establishment, through free elections, of governments "responsive to the will of the people"; and (4) to facilitate where necessary the holding of such elections. (For Yalta decisions on Germany, see "War in Europe: Last Phase".)

BERLIN CONFERENCE (POTSDAM)

The meeting in Berlin (July 17 to Aug. 2) of Truman, Stalin, and Churchill—the last named succeeded during the Conference by Attlee, head of the new British Labor Government—gave the major Allies another opportunity to carry forward the doctrine of joint responsibility for the settlement of international problems.

At Berlin the main goal was agreement on the outstanding political and economic problems the war had left in its wake in Europe, with some attention to military problems in Asia. In connection with these military discussions, the United States, Britain, and China issued a proclamation to Japan on July 26 outlining surrender terms and, in a reference to the atomic bomb, the warning that "the full application of our military power . . . will mean the inevitable and complete destruction of the Japanese armed forces and just as inevitably the utter devastation of the Japanese homeland."

The chief non-military issue at Potsdam was the treatment of Germany, for previous parleys and diplomatic exchanges had failed to define specifically the nature of Allied policy toward the Reich. (For specific terms of the Potsdam agreement on Germany, see "War in Europe".) In addition to this agreement, the Big Three reaffirmed the Yalta principle that they should assume a common responsibility in helping to reestablish in the liberated and satellite nations of Europe governments broadly representative of democratic elements in the population. President Truman, in his radio report to the nation on the Potsdam Conference, declared that Rumania, Bulgaria, and Hungary, in connection with which particular questions had arisen, "are not to be the spheres of influence of any one power . . . Until these states are reestablished as members of the international family, they are the joint concern of all of us."

The Conference also agreed it was desirable to end "the present anomalous position of Italy, Bulgaria, Finland, Hungary and Rumania" by the conclusion of peace treaties. In order to facilitate the making of these treaties, the Conference established the Council of Foreign Ministers, made up of the foreign ministers of the United Kingdom, the Soviet Union, China, France, and the United States. This body, which was normally to meet in London, was to serve as the continuous meeting-ground of the five principal governments and thus to aid in reaching a common understanding regarding the peace settlements. In drawing up treaties of peace and proposals for territorial settlements in Europe the Council was to be composed of members representing those states which were signatory to the terms of surrender imposed upon the enemy state concerned. For the purpose of the peace settlement for Italy, France was to be regarded as a signatory to the terms of surrender for Italy. Other members were to be invited to participate when matters directly concerning them were under discussion.

FIRST SESSION OF COUNCIL OF FOREIGN MINISTERS (LONDON)

The first meeting of the Council of Foreign Ministers of the U.S.S.R., Britain, the United States, France, and China, created by the Potsdam Declaration, was opened in London Sept. 11 and closed in a stalemate on Oct. 2.

The particular issue on which the meeting broke down was a procedural one. Foreign Commissar Molotov, after agreeing on Sept. 11 that France and China could be present at all sessions, withdrew his consent to this arrangement 11 days later, contending that the Potsdam agreement excluded France and China from discussing treaties with the Axis satellites since they had not been armistice signatories. From the point of view of Russia, the participation of France—which in Moscow's opinion made no important contribution to the defeat of Germany—and of China, a non-European power, was apparently considered unnecessary and undesirable.

Observers suggested that the main reason for the collapse of the conference was the belief on the part of the Russians that they had detected, whether rightly or wrongly, a tendency on the part of Britain and the United States to stand together and of France to side with the western powers. There appeared to be no evidence that Washington and London had had any preliminary understanding, but Russia's suspicions had the result of bringing Britain and the United States closer together during the London meeting, and of effecting a rapprochement between them and France.

Despite the failure of the first session of the Council of Foreign Ministers, none of the Allies seemed to display an inclination to abandon international consultation in favor of strictly independent action. Secretary of State Byrnes, in his radio report to the nation on Oct. 5, admitted that the meeting had been disappointing, but at the same time he declared that it "need not, and should not, deprive us of a second and better chance to get on with the peace."

MOSCOW MEETING OF AMERICAN, BRITISH, AND RUSSIAN FOREIGN MINISTERS

After reaching a stalemate at London, practical collaboration among the major Allies, except through diplomatic channels, ceased for all practical purposes. In an effort to break this impasse, Secretary of State Byrnes proposed that the foreign ministers of Britain, Russia, and the United States meet in Moscow and discuss problems that had arisen in their relationships with each other.

The Moscow Conference of Dec. 16-26 did not achieve agreement on all matters that had brought about controversies among the three great powers. It did, however, result in a compromise on the procedure of peacemaking, thus clearing the way for the negotiation of treaties with Italy and the Axis satellites of eastern Europe. According to this compromise, the peacemaking procedure will have three stages. The first will be the drafting of peace treaties by the United States, Britain, and Russia with Italy (France to participate in this instance), Hungary, Rumania, and Bulgaria; and by Britain and Russia with Finland (the United States did not declare war on Finland). Second, these draft treaties will be submitted to a peace conference which, in addition to the Big Three, as well as France and China, will be attended by "all members of the United Nations which actively waged war with substantial military force against enemy states," this conference to be held not later than May 1, 1946. Third, upon conclusion of this conference and consideration of recommendations, the Big Three (and in the case of the treaty with Italy, also France) will draw up final texts of the peace treaties.

At Moscow, decisions were also reached concerning changes in the governments of Rumania and Bulgaria, which the Western powers considered unsatisfactory. (See "War in Europe") In connection with Far Eastern problems, it was agreed that American control of Japan should be merged into an 11-nation set-up in which the United States, with the U.S.S.R., Britain, and China would have veto power over the formulation of new policies or the modification of those already in force under the Supreme Commander, General Douglas MacArthur, who retained significant powers. The intention to create a four-power trusteeship of the United States, Russia, China, and Britain "for a period of up to five years" for Korea was also announced, and in connection with China, the Big Three asserted, in one of the least specific sections of the Moscow decisions, their common desire "for a unified and democratic China under the National Government, for broad participation by democratic elements in all branches of the National Government and for the cessation of civil strife."

More far-reaching, perhaps, than these political agreements reached at Moscow was the decision of the Big Three to recommend the establishment by the United Nations of a commission to consider problems arising from the discovery of atomic energy and related matters. This commission was to be responsible to the Security Council of the United Nations Organization, and should be composed of one representative from each of the 11 nations on the Council, and Canada (which played an important part in the discovery of the atomic bomb) when that country is not a member of the Security Council.

UNITED NATIONS RELIEF AND REHABILITATION ADMINISTRATION

Confronted with widespread want in Europe and Asia, the United States distributed emergency relief supplies through three agencies: UNRRA, lend-lease, and the Army.

The United Nations Relief and Rehabilitation Administration, composed of 47 Allied governments and financially supported by 31 countries which had not been invaded by the Axis, gave relief to the peoples of liberated countries in Europe and the Far East who were unable to finance their own immediate basic needs for food, clothing, medical care, public utilities, and transport facilities.

The European activities of this international organization were confined during 1945 to six countries: Greece, Yugoslavia, Albania, Czechoslovakia, Italy, and Poland. In addition to dispensing relief in these countries, UNRRA had the tasks of operating refugee camps in the Middle East and of assembling, caring for, and directing homeward displaced United Nations nationals in Germany and Austria. In the Far East aid was sent to the Philippines, and following the end of the war with Japan, UNRRA set about procuring 800,000 tons of supplies for the initial program of aid to China.

In an attempt to accelerate UNRRA's operations after the end of hostilities, the governing Council of the organization met in London Aug. 7-24 for its third annual meeting. Agreements reached at this conference included: (1) resolution recommending another contribution of 1 per cent of the national income of each of the uninvaded nations belonging to the organization, to raise $1,800,000,000 for 1946 in addition to the original total UNRRA budget of approximately $1,862,000,000; (2) admission of Canada, which was, next to the United States, the largest source of relief supplies, and France to membership on the Central Committee, the body responsible for making policy decisions when the Council is not in session; (3) admission of Denmark and the Ukrainian and Byelo-Russian Soviet Socialist Republics to membership in the Council; (4) aid on a full-scale basis to Italy, which had been granted on a limited basis at the Montreal session of 1944, and classification of Austria, Korea and Formosa as regions which might qualify for relief aid; (5) adoption of a resolution asking supplying countries to insure the prompt and equitable flow of supplies to UNRRA and to make available war surpluses for relief purposes.

One of the most difficult questions arising at the meeting of the Council of UNRRA in London concerned the disposition of displaced persons who were unwilling to return to their homelands. Russia, Poland, Czechoslovakia, and Yugoslavia maintained that UNRRA had no authority to supply food, clothing, or other care to displaced persons who failed to return to their homelands. Britain and the United States, on the other hand, believed these persons should not be forced to return against their will. A compromise was finally reached by means of a resolution to the effect that the matter should go over for the next council meeting, and in the meantime the care of these displaced persons should be carried on by UNRRA. Despite these efforts by the Council to facilitate the work of the organization, three main problems continued to confront UNRRA.

MAIN PROBLEMS CONFRONTING UNRRA

Finances.—Although 31 nations pledged support to UNRRA, the bulk of its budget—$1,350,000,000 was subscribed by the United States, and the final $550,000,000 installment of this amount was not finally voted by Congress until Dec. 17. During the Congressional debate concerning this appropriation, UNRRA encountered considerable criticism, generally based on the charges that the organization was inefficient and that political favoritism had influenced the distribution of relief supplies. Strong appeals for support of UNRRA were made, however, by General Eisenhower and Herbert H. Lehman, Director-General of UNRRA, on the ground that the organization was the only body prepared to carry out relief tasks. Despite Congressional delay on the 1945 appropriation, President Truman asked for another appropriation of $1,350,000,000 for 1946, declaring that the United States should under no circumstances default in its support of the organization.

Supplies.—Even when UNRRA had funds for purchases, it was sometimes unable to buy suitable supplies, and shipping as well as transportation difficulties along this line were considerably increased by the fact that the war in Europe and the Far East added to the problems of distributing such supplies as were secured. UNRRA's difficulties along this line were considerably increased by the fact that the war in Europe lasted a number of months longer than Allied military leaders had generally anticipated, while the war in the Far East was shorter than expected. Because of the continuance of the European war, shipping and relief supplies for the continent remained extremely scarce until V-E Day, and the prolongation of fighting caused a greater need for aid than UNRRA's plans had originally called for. Then as UNRRA was accelerating its activities in the European area, the sudden surrender of Japan made it imperative that the organization begin the immediate implementation of its plans for assisting China and the Far East.

Authority.—UNRRA was not only restricted to a relatively small number of liberated countries, but in those nations where it operated, its authority was restricted by the provision that relief supplies should be distributed by local political officials. This provision, which had been adopted in view of the fear of local régimes of interference, did not, however, entirely dispel fears on the part of local authorities that relief would be used to strengthen political rivals. In eastern Europe UNRRA gained admission rather tardily because of Russia's fears that relief might be used to bolster anti-Soviet elements in the area.

LEND-LEASE

Lend-lease, dispensed by the Foreign Economic Administration, continued during the remaining months of the war to give aid to countries where civil order was deemed necessary for American military operations or redeployment. Through this channel, supplies of various kinds were sent to Britain, Russia, France, Belgium, the Netherlands, Norway, Australia, and China.

According to the Twentieth Report by the President to Congress on lend-lease operation, covering the period ended June 30, 1945—by which time most of the tasks of lend-lease were completed—the United States had given $31,368,909,000 worth of lend-lease aid between March 31, 1941 and July 1, 1945. By the same date, reverse lend-lease had reached $5,600,364,000.

In lend-lease, the United States had furnished the United Kingdom $13,498,748,000 and received $3,796,883,000 in reverse; furnished the U.S.S.R. $9,128,875,000, received $2,139,000 in reverse; furnished North, Central, and South America $976,603,000 (including $618,072,000 to Canada); furnished Africa, the Middle East, and the Mediterranean area $3,334,656,000; furnished China $397,000,000, received $3,672,000 in reverse; furnished India $2,033,385,000, received $516,713,000 in reverse; furnished Australia $1,169,260,000, received $791,282,000 in reverse; furnished New Zealand $209,438,000, received $189,003,000 in reverse; furnished other countries $1,553,170,000 (including $1,205,000,000 to France and French Africa, and received approximately $200,000,000 from France from D-Day until Jan. 31, 1945 in reverse).

The formal termination of lend-lease was announced by President Truman on Aug. 21, at which time he notified the Allied governments concerned to take over through purchase some $2,000,000,000 worth of non-munitions and other finished goods already contracted for in the United States, and to negotiate, if they desired, for another $1,500,000,000 worth in stockpiles throughout the world. The effect of the sudden halt of lend-lease was felt most keenly in Britain, France, Belgium, and other countries that had formerly been mainly dependent on large lend-lease shipments of food.

LOANS

In an attempt to find a substitute for lend-lease as a means of procuring food and other essential goods from the United States, Britain opened negotiations during September for a loan, which was finally agreed upon by the Anglo-American negotiations on Dec. 6, subject to approval by Parliament and Congress. Under the terms of the proposed agreement, the United States would extend to Britain a "line of credit" amounting to $3,750,000,000 and, in addition to liquidating lend-lease obligations amounting to $25,000,000,000, a loan of $650,000,000 at two per cent interest, will be granted for settling remaining lend-lease claims owed to the United States. Whether or not the total amount of $3,750,000,000 is taken up within five years, repayment to extend over 50 years will then begin. The agreement also binds Britain to adjust some of its external financial obligations by permitting the conversion of sterling funds now blocked in London, so that the owners of these funds may use them for purchases elsewhere than in Britain.

Likewise, France secured a $440,000,000 loan from the United States shortly after V-J Day in order to finance the purchase of such materials as had been previously approved as lend-lease items, and an additional $500,000,000 credit from the export-import bank was subsequently negotiated. Both loans were on terms of 2⅜ per cent interest over a 30-year period.

JEWISH REFUGEES IN EUROPE

Recognizing the fact that the hardships of European Jews had not ended with the disappearance of Hitler, President Truman appointed a mission, headed by Earl G. Harrison, to inquire into the condition and needs of displaced persons in western Europe and in western Germany, with particular reference to Jewish refugees who might be stateless or non-repatriable. Harrison, in his report, released Sept. 29, declared that many Jewish displaced persons and other non-repatriables were still living behind barbed-wire fences in guarded camps characterized by "unsanitary and generally grim conditions." He concluded that "for reasons that are obvious," most homeless Jews wanted to leave Europe at once, and that most of them wished to be evacuated to Palestine, "just as other national groups are being repatriated to their homes."

In response to the Harrison report, President Truman proposed to Prime Minister Attlee on Aug. 31 that Palestine be opened to 100,000 European Jews, despite the fact that the British White Paper of 1939 called for cessation of immigration on Oct. 26. Attlee, on Sept. 16, replied by opposing this suggestion but urging the creation of a joint Anglo-American policy toward Palestine.

When Arab leaders indicated that they considered President Truman's suggestion incompatible with the statement by President Roosevelt in a letter to King Ibn Saud of Saudi Arabia early in April to the effect that the United States would make no decisions concerning Palestine without consulting both the Arabs and the Jews, Secretary of State Byrnes published Roosevelt's letter on Oct. 18 and restated the Roosevelt policy. In an apparent attempt to reconcile the Roosevelt policy, which some military officials considered important to American security, in view of the valuable oil concessions which Ibn Saud had made to American companies, and at the same time find a home for a large number of homeless European Jews, the United States formally assumed at least a limited responsibility with Britain for the solution of the Palestine problem. On Nov. 13, Washington and London agreed that their two governments should cooperate in officially surveying before 1946, the contribution Palestine could make toward alleviating the distress of homeless Jews of post-war Europe.

FOOD AND AGRICULTURE ORGANIZATION (FAO)

On July 31, 1945 the United States formally adhered to the constitution of the Food and Agriculture Organization, which had grown out of discussions and negotiations begun at the United Nations Food and Agriculture Conferences in Hot Springs, Va. in 1943 and 1944. With the signing of the Charter at the first meeting of the FAO in Quebec Oct. 16-Nov. 1, the first of the permanent international functional authorities, established after the Second World War, came into being. Although the Soviet Union had not yet joined the organization, Moscow sent observers to the conference.

The purpose of the FAO is to expand and improve agricultural production to a point that will not only guarantee an adequate price for the farmers of the world but will provide ample food supplies to raise the world level of nutrition. To this end, the FAO intends to improve methods of agricultural production and combat economic nationalism by promoting international exchange of foodstuffs on a wide scale.

The three main working functions of the FAO are: (1) collection analysis, interpretation, and dissemination of information relating to nutrition, food and agriculture; (2) promotion, and in appropriate cases, recommendation of national and international action with respect to improving the processing, marketing, and distribution of food and other agricultural products; and (3) the assistance of individual governments by obtaining technical assistance that they request in order to fulfil obligations they assume in accepting recommendations of the FAO.

The fact that the FAO lacks any power beyond persuasion in overcoming political or economic opposition to its proposals was underlined by President Roosevelt in his message to Congress, on March 26, 1945, transmitting the first report of the Interim Commission for Food and Agriculture. "In becoming a member of the Food and Agriculture Organization," he declared, "we will retain complete freedom of action in determining our national agricultural policies."

Despite its limited powers, the FAO has a broader scope than that of any previous agency operating in this field. The International Institute of Agriculture at Rome, established in 1905, was restricted to research on agricultural problems and did not concern itself with the question of improving nutrition. Likewise, the International Labor Organization, which has a committee specifically concerned with agriculture, had not concerned itself with the dual task of improving agriculture and nutrition.

UNITED NATIONS EDUCATIONAL, SCIENTIFIC, AND CULTURAL ORGANIZATION (UNESCO)

Following the discussion of the American suggestion at the Conference of Allied Ministers of Education in 1944, that a United Nations Organization be established to deal with educational and cultural problems in the reconstruction period, a large number of Allied nations reached agreement during 1945 on a constitution for such an organization. At the third conference of the International Education Assembly, in New York on April 16, delegates from 34 of the United Nations adopted a resolution calling upon representatives to the forthcoming San Francisco Conference on United Nations Organization to establish a world office of education.

The governments of the United States, United Kingdom, and U.S.S.R. approved, on April 24, a proposal made by the Government of China that the Economic and Social Council of the UNO "should specifically provide for the promotion of educational and other forms of cultural cooperation," among the tasks that the Economic and Social Council was to fulfil.

Within the framework of the new United Nations Charter, the Conference of Allied Ministers of Education thereupon made draft proposals for an Educational, Scientific, and Cultural Organization of the United Nations, and the resulting constitution was signed by 43 United Nations (not including the U.S.S.R.) at a conference held in London Nov. 1-16. The constitution will come into force when it has been ratified by 20 of its signatories, and Paris will be its permanent seat.

According to its constitution, the UNESCO is "dedicated to the proposition that the free and unrestricted education of the peoples of the world, and the free and unrestricted exchange among them of ideas and knowledge are essential to the advancement of human welfare and to the preservation of security and peace." The Organization is to recommend such international agreements as may be necessary to promote the free flow of ideas among nations and to aid the member nations, at their request, to advance the ideal of equality of educational opportunity by suggesting educational methods best suited to this end.

PROVISIONAL INTERNATIONAL CIVIL AVIATION ORGANIZATION

Because of continued disagreement as to whether the International Civil Aviation Council, proposed by the Chicago Civil Aviation Conference in 1944, should have strong regulatory powers as urged by the United Kingdom, or merely technical and advisory powers, as supported by the United States, and a majority of the countries represented at Chicago, none of the documents drawn up in 1944, with the exception of the interim agreement, obtained sufficient ratifications during 1945 to become operative.

In the absence of international understanding on civil aviation, the United States signed during 1945 bilateral agreements with seven countries providing for freedom of pickup. Considerable pressure for establishment of a workable and useful international civil aviation organization nevertheless continued.

INTERNATIONAL FUND AND BANK

The Bretton Woods plan for an international fund and bank had, by the end of 1945, been signed by 28 nations, including the United States (July 31), China, Britain and France. There was no indication of what Russia's action would be. The Articles of Agreement required countries responsible for 65 per cent of the capital to be paid into the Bank and Fund to adhere by Dec. 31, 1945, and a sufficient number had done so.

INTERNATIONAL LABOR ORGANIZATION

The International Labor Organization, created by the Versailles Treaty and joined by the United States in 1934, voted at its 27th session in Paris during November to change its constitution to facilitate the agency's entrance into the group of organizations associated with the UNO. The move in this direction was complicated, however, by the opposition of the U.S.S.R. to the organization and the fact that some ILO members, as neutrals during the Second World War, were not eligible for admission to the UNO.

THE MARSHALL REPORT AND MILITARY TRAINING

In his biennial report to the Secretary of War, released to the public Oct. 10, General George Marshall traced the victorious advance of the United States sea, air, and land forces, together with those of the other Allies, in a period during which, he declared, it was more clearly within the power of the United States "to give definite guidance for our course into the future of the human race," than at any previous time.

Following a discussion of the strategy of the war and the efforts exerted to implement the overall plans, General Marshall turned to a consideration of means for providing "a reasonable guarantee for future generations against the horrors and colossal waste of war as well as security for that freedom we recently left to the hazard of mere hope or chance."

Such a reasonable guarantee, he concluded, could best be found in a plan for peacetime universal military training for a citizen army. Declaring that the United States had heretofore "ignored the hard realities of world affairs" and been purely idealistic, he recommended that all young men should undergo a period of military training and be available for service when the nations in jeopardy under such conditions as might be directed at that time by Congress. General Marshall's suggestion touched off a heated debate in Congress and throughout the country on the utility and desirability of universal peacetime military training. No official decision was reached by the end of 1945.

SAN FRANCISCO CONFERENCE AND UNO CHARTER

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COMPOSITION OF THE CONFERENCE

The delegates of the 50 United Nations at war with either Germany or Japan or both met at San Francisco April 25-June 26, 1945, and drew up the United Nations Charter providing for an international security organization. The decision to hold the conference at San Francisco had been made by the Big Three at Yalta the preceding winter, and it proved a good one. The movement of troops and matériel from this west coast city to the Pacific theater of war served as a constant reminder to the delegates of the need to proceed rapidly in order to complete their task before the war ended.

The choice of an American city as the scene for the conference seemed to emphasize one of the notable trends observed at the sessions—the predominance of non-European countries. Although Europe has been the stage for one of the decisive phases of the war against the Axis, only Holland, Belgium, Luxemburg, Norway, Czechoslovakia, Yugoslavia, Greece, and Turkey were present to represent the small nations of Europe. Denmark was invited to become one of the United Nations at the close of the conference. Sweden, Switzerland, Spain, Portugal, and Eire were absent because they had not declared war on the Axis. Finland, Hungary, Rumania, Bulgaria, and Italy were absent because they had been German satellites. Poland was absent because the Big Three had at that time not yet reached agreement on the composition of its government. Those European representatives who were present, however, were able to redress their numerical weakness by force of their abilities and experience in international negotiations. Among the most prominent European delegates were Foreign Minister Paul-Henri Spaak of Belgium, Foreign Minister John Sofianopoulos of Greece, and Foreign Minister E. N. Van Kleffens of the Netherlands.

Among the European representatives at the conference, particular importance naturally attached to the French delegation, headed by Foreign Minister Georges Bidault. At first, however, it was not clear whether France would act as the champion of the rights of the small nations against the strongest powers, or attempt to seek to return to great-power status. After some uncertainties, Foreign Minister Bidault opted for the latter course, and during the sessions he succeeded not only in having France admitted to the ranks of the Big Five, but in being seated as a permanent member of the Security Council as soon as it came into existence rather than "in due course," as the Dumbarton Oaks Conference had proposed.

PREDOMINANT RÔLE OF THE BIG THREE

Important though leading delegates from the smaller powers were in shaping the decisions reached by the conference, the Big Three—United States, Russia, and Britain—played the major rôle. The concepts held by these three nations as to the best approach to international security were, therefore, of great importance. Foreign Commissar Vyacheslav M. Molotov, who headed the Russian delegation, took the view that the most significant aspect of the proposed international organization was its effective authority, rather than its responsibility, and he stressed the need for giving the new organization adequate military forces that could be used promptly against an aggressor. Arguments about the rights of the small nations, he contended, should not be permitted to obscure the fact that the great powers had borne the burdens of the war and would have to be the ones to preserve peace in the postwar period. Accordingly, he insisted on a strict interpretation of the right of the Big Five to veto any proposed action by the Security Council.

By contrast, British Foreign Secretary Anthony Eden declared that the great powers not only should support international organization for security but set up standards of international conduct and observe them in relation to other nations. The concept of the responsibilty of the great powers was also stressed by China, represented by Foreign Minister T. V. Soong, who pleaded for the creation of legal order and justice as well as peace and security.

The United States delegation attempted to steer a middle course between the great-power authoritarianism advocated by Russia, and the domination of the proposed international organization by the numerically superior weaker nations, whose demands for equality of rights did not rest on ability to accept equality of responsibility. In addition to Secretary of State Edward R. Stettinius, who headed the delegation, the United States representatives were Senators Vandenberg and Connally and Commander Harold E. Stassen. The inclusion in the delegation of two Senators and two Republicans (Vandenberg and Stassen) marked an effort on the part of the Administration to ensure Senatorial and bi-partisan support for the work of the conference.

DEBATE ON THE VETO POWER

The most important debates at the conference centered around the question of voting procedure in the Security Council, to consist of the United States, Russia, Britain, France, and China as permanent members and six non-permanent members to be elected from the other United Nations. The question of voting in the Council was of such great importance that the Dumbarton Oaks Conference had left it open, merely stating that this problem was "still under consideration," and the Big Three had considered it at the Crimea Conference in February 1945. At Yalta President Roosevelt, Prime Minister Winston Churchill, and Marshal Joseph Stalin agreed on a voting formula which was announced by the United States government on March 5.

According to the Yalta voting formula, a distinction was made between two types of questions on which the Security Council might vote—procedural decisions, and decisions on all other matters, sometimes described subsequently as "substantive" questions. On procedural questions, such as the adoption or alteration of rules of procedure, decisions were to be reached by an affirmative vote of any seven members, and did not have to include any particular number of the Big Five. On all other matters, however, decisions were to be reached by an affirmative vote of seven members, and these seven members had to include all the Big Five. This meant that any one of the Big Five could, on a "substantive" matter, prevent a decision by declining to vote in the affirmative. This is what is known as the "veto power" of the United States, Russia, Britain, France, and China in the Security Council.

The middle and small nations made it clear that they would have preferred to see the Big Five abandon their veto power over enforcement action by the Security Council. At the same time, however, these nations conceded the fact that the Big Five had reasons for taking the position they did on this issue, particularly since they would have to supply the great bulk of the military and industrial forces in undertaking action against an aggressor. What the "Little 45" at the conference did fight for, however, was to remove all other matters from the scope of the Big Five veto. In this connection, they were particularly eager to prevent the Big Five from vetoing discussion of any dispute, arguing that restrictions on the right of discussion would establish complete "great power dictatorship."

A tense moment accordingly developed at the conference when Russia insisted that the Big Five should have the right to veto, not only investigation of any dispute and the right to take enforcement action with respect to it, but also to the discussion of any dispute at any stage. In opposition to this view, nearly all the other delegations, including those of the United States and Britain, took the view that all members of the Security Council should be free to discuss any dispute threatening the maintenance of international peace and security. The resulting impasse on this question was finally broken, after prolonged negotiation in San Francisco and a direct appeal to Marshal Stalin through Harry Hopkins, who was in Moscow on a special mission for the purpose of settling the question of the Polish régime. Stalin instructed the Russian delegation to abandon its request for a veto over discussion of international disputes and to show a "conciliatory" attitude "in the interests of the success of the conference." As a result, the Big Five issued a statement declaring that "no individual member of the Council can alone prevent consideration and discussion by the Council of a dispute or situation" brought before the Security Council by any nation.

As a result of the veto power of each member of the Big Five in all questions of enforcement action by the Security Council, it is clear that the UNO might operate to prevent wars between small nations, but not to prevent wars in which any one of the Big Five is involved. If, in other words, any threat of war should come from one of the Big Five, the question of whether the Security Council would be adequate to prevent it or cope with it would be seriously raised. The assumption on which the entire Charter rests remains that which underlay the Dumbarton Oaks proposals —that the wartime close-knit alliance of the major Allied powers can be carried over into the postwar period and made the basis for world security.

CHANGES IN DUMBARTON OAKS PROPOSALS

The conference was a hard-working one, and the delegates of the assembled nations, grouped into four main commissions—General Provisions, General Assembly, Security Council, and Judicial Organization—subdivided in turn into 12 committees, labored to produce not only a security organization to check aggression once it had begun but to alleviate and eventually eliminate the basic causes of wars among nations. The representatives at the conference used the proposals made by the Dumbarton Oaks Conference the preceding year as their working draft, but in the course of their deliberations they succeeded in broadening and liberalizing these basic proposals in certain respects.

CONSIDERATION FOR JUSTICE AND HUMAN WELFARE

The Dumbarton Oaks document had been criticized in a number of quarters as an almost exclusively military security arrangement, with little or no consideration for justice and human welfare. In the eyes of the small nations and important sectors of public opinion in Britain and the United States, this preoccupation of the organization with the collective use of military force to prevent acts of aggression might lead to a "peace" that was merely order imposed by force. In an effort to overcome this short-coming, the San Francisco Conference adopted a preamble to the Charter that listed matters which had been left out of the Dumbarton Oaks proposals—human rights, the dignity and worth of human beings, the equal rights of men and women and of nations large and small, justice and respect for obligations arising from treaties, and the promotion of social progress and better standards of living. Likewise, Chapter I of the Charter, concerned with the principles and purposes of the organization, was broadened to include recognition of the principle that the international organization should be concerned not only with peace but with peace "in conformity with the principles of justice and international law."

RÔLE OF THE GENERAL ASSEMBLY BROADENED

One of the most important changes in the Dumbarton Oaks proposals secured by the small and middle nations at San Francisco concerned the rôle of the General Assembly. In the original Dumbarton Oaks plan, the Assembly was slated to be little more than a debating society, for it did not have the right to call the attention of the Security Council to situations which it considered likely to endanger international peace and security. Under the terms of the Charter as finally formulated, however, the General Assembly became a deliberative body that is to keep a close and continuous check on the activities of the Security Council.

The Charter provides that the General Assembly shall have the right to discuss "any questions or any matters within the scope of the present Charter" and may make recommendations with regard to any such questions to the state or states concerned or to the Security Council, or to both. Any such question on which action is necessary shall be referred to the Security Council by the General Assembly either before or after discussion. Moreover, it is provided that "the General Assembly shall receive and consider annual and special reports from the Security Council; these reports shall include an account of the measures that the Security Council has decided upon or taken to maintain international peace and security," thus preventing the possibility that the Security Council might pigeonhole matters threatening international peace and security, blocking further action on these matters by the Assembly.

In addition to its rôle in connection with discussions of matters affecting international peace and security, the General Assembly, according to the Charter, shall initiate studies and make recommendations in connection with international economic, social, cultural, educational, and health problems.

ECONOMIC AND SOCIAL COUNCIL STRENGTHENED

While the Dumbarton Oaks proposals had left the functions of the Economic and Social Council, which is to act under the authority of the General Assembly, rather sketchy and vague, the Charter defined them more carefully and made the Council one of the "principal organs" of the UNO, along with the Security Council, General Assembly, Secretariat, Trusteeship Council, and International Court of Justice. In this way the San Francisco Conference emphasized its attempts to make the UNO an instrument to prevent wars through peaceful adjustment of social and economic problems, as well as to halt aggressions once they had begun.

Among the objectives toward which the Economic and Social Council should work, according to the Charter, are the "creation of conditions of stability and well-being which are necessary for peaceful and friendly relations among nations." Among these objectives are higher standards of living, full employment and conditions of economic and social progress, solutions of international economic, social, health, and related problems, and universal respect for human rights and fundamental freedoms. The Council is empowered not only to carry out the recommendations of the General Assembly but to make recommendations on its own initiative and to make and initiate studies with respect to problems within its province.

TRUSTEESHIPS FOR DEPENDENT PEOPLES

While the Dumbarton Oaks proposals did not mention the problem of dependent peoples, the Charter contains a section providing for the establishment of an international trusteeship system for the administration and supervision of such territories, to be known as trust territories, as may be placed thereunder by subsequent individual agreements. The basic objectives of the trusteeship system are to promote the political, economic, social, and educational advancement of the inhabitants of the trust territories, and their progressive development toward self-government or independence as may be appropriate to the particular circumstances of each territory and its peoples and the freely expressed wishes of the peoples concerned, and as may be provided by the terms of each trusteeship agreement.

According to the terms of the Charter, there should be three main categories of territories under the trusteeship system: (1) territories now held under mandate; (2) territories which may be detached from enemy states as a result of the war; and (3) territories voluntarily placed under the system of states responsible for their administration. Which particular territories should fall into these categories included in the Charter was left as a matter for subsequent discussion.

It should be noted that the Charter's declaration of general principles concerning non-self-governing areas entails no change in the status of the various powers' colonies except such as these powers may voluntarily undertake to make. In fact, it was precisely because the Charter's provision for the creation of trusteeships was vague that colonial nations like Britain, France, the Netherlands, and Belgium found it acceptable. Moreover, the fact that a division of opinion existed within the United States, on the advisability of accepting the trusteeship principle, resulted in the establishment of a distinction between "strategic" and "non-strategic" areas to be held as trusts. On the one hand, the Navy and War Departments wanted outright annexation of Pacific islands conquered by American forces, and the State Department wished to establish general principles to be observed by all nations in the administration of dependent peoples. Until a definite compromise between these two points of view had been found, the United States wished to have the provision for trusteeship remain flexible and general.

As a result of uncertainties such as these, moreover, the Charter provided that the trusteeship arrangement for each territory to be placed in trust should be agreed upon by "the states directly concerned," a phrase which clearly left the door open for countries receiving territories detached from enemy states (*e.g.* the United States or Russia when they received Japanese-mandated or Japanese-owned islands) to abstain from placing them under the trusteeship system if they should so desire.

The trusteeship system set forth in the Charter was, therefore, left vague in several important respects and was marked by obvious weaknesses. As in the case of other major provisions of the Charter, however, it established principles and methods which could gradually be used to deal with controversial international problems.

RELATIONSHIP OF REGIONAL AND COLLECTIVE SECURITY ESTABLISHED

The Dumbarton Oaks proposals had left the question of the relationship of regional and collective security measures undetermined, and this problem had been increasingly confused during the final phases of the war by the conclusion of a number of bilateral or regional security arrangements. Two formulas were worked out at San Francisco which acknowledged the existence of regional security measures during the period of transition during which the United Nations Organization should establish a more permanent world-wide system of security.

First, to meet the special situation

prevailing in Europe, where Russia had already concluded bilateral pacts with France, Britain, Czechoslovakia, Poland and Yugoslavia as a safeguard against the renewal of German aggression, it was provided that security agreements directed against former enemy states could be used "against renewal of aggressive policy on the part of any such state . . . until such time as the (United Nations) organization may, on the request of the Governments concerned, be charged with the responsibility for preventing further aggression by such a state."

Second, to recognize the demand of the Latin American countries to take measures of self-defense against one of their number resorting to aggression, it was provided that nothing in the terms of the Charter should "impair the inherent right of individual or collective self-defense if an armed attack occurs against a member of the United Nations, until the Security Council has taken the measures necessary to maintain international peace and security."

The determination of the United States and the Latin American countries to restore hemisphere solidarity within the frame-work of the Charter, even at the risk of seeming to appease a Fascist government in Buenos Aires, was revealed in the conflict over the admission of Argentina. Although Russia opposed this measure, many Latin Americans replied that they had acquiesced in the granting of two votes to Bielorussia and the Ukraine, component republics of the U.S.S.R., only because the United States had made it clear to them that, in return, Argentina would be admitted.

THE INTERNATIONAL COURT OF JUSTICE

At San Francisco the question of whether the Permanent Court of International Justice (commonly called the World Court) should be retained or a new one established aroused lively discussion. Although there was agreement that the old Court had rendered effective service and had a good record, it was decided—chiefly because certain states belonging to this Court were ineligible for membership in the UNO—to form a new court. In order to retain the traditions and precedents of the World Court, however, the Charter established specific links between the new International Court of Justice and its immediate predecessor.

Article 7 of the Charter provides that the International Court of Justice shall be one of "the principal organs of the United Nations." Instead, therefore, of occupying the related but separate position which the old Permanent Court of International Justice held in the League of Nations system, the new Court is an integral part of the United Nations Security Organization. The somewhat aloof position of the World Court from the League was the result of a deliberate decision, strongly advocated by Elihu Root, that the separation of the Court was necessary to its judicial independence. The experience of the past quarter of a century demonstrated, however, that the connections between the Court and the League were mutually beneficial, and the San Francisco Conference took cognizance of this fact.

The jurisdiction of the new Court was discussed at great length by the San Francisco conferees. The smaller states tended to favor "compulsory jurisdiction," while the U.S.S.R. delegation was unequivocally opposed to this suggestion, and the United States indicated a desire to see obligatory jurisdiction established as "the rule." It was pointed out, however, that the United States Senate had shown reluctance in the past about the acceptance of an international court, and it was suggested that a provision to this effect might endanger ratification of the Charter as a whole. It was noted, nevertheless, that the very existence of an international court to which both the United States and Russia, which had not been members of the World Court, marked an advance toward the establishment and maintenance of an international system of justice. Moreover, if either of these nations should in the future be willing to extend the powers of the Court, Article 36 of the Statute of the Court provides that the signatories may at any time declare that they recognize as compulsory the jurisdiction of the Court in all legal disputes concerning "(a) the interpretation of a treaty; (b) any question of international law; (c) the existence of any fact which, if established, would constitute a breach of an international obligation; (d) the nature or extent of the reparation to be made for the breach of an international obligation."

AMENDMENT AND PROVISIONS FOR WITHDRAWAL FROM UNO

As far as changes in UNO are concerned, the Charter provides that, if a general conference to review the document has not been held before the tenth annual session of the General Assembly, a proposal to that effect shall be placed on the agenda of that session. A general conference to review the Charter can be summoned at any time by a two-thirds vote of the General Assembly (in the tenth year and after by a majority) and by a vote of any seven members of the Security Council. Upon receiving a two-thirds vote of the conference any proposed amendment of the Charter must then be ratified by two-thirds of the members of the United Nations, including all the permanent members of the Security Council. Each of the Big Five, therefore, has the power to veto a proposed amendment to the Charter.

Provisions for the withdrawal of member states from the UNO are not actually included in the Charter. However, an official interpretative report included in the record of the San Francisco Conference indicated that it was understood that members might withdraw under at least three conditions: (1) if, in their opinion, UNO failed to maintain peace with justice; (2) if the organization adopted amendments unacceptable to the withdrawing state; (3) if amendments adopted by a general conference of the United Nations failed to come into effect because of the veto by any one of the Big Five.

RATIFICATION

The Charter was to come into force upon the deposit of ratifications with the Government of the United States by the Big Five and by a majority of the other signatories. On June 26, 50 nations signed the Charter, and Poland subsequently became the fifty-first signatory, raising the total number of ratifications required to 29. On July 2, President Truman submitted the Charter to the Senate, and on July 28 it received a favorable vote of 89 to 2. By Oct. 24, the twenty-ninth instrument of ratification had been received, and the Charter went into effect on that date.

Ratification of the Charter marked, however, only the first and easiest step toward the implementation of the Charter. Several points particularly remained to be worked out before even the limited amount of international organization envisaged by the Charter could come into effect—the establishment of trusteeships for non-self-governing peoples, the specification of the armed forces of the Security Council, and the scope of authority the various delegates to the Security Council would be permitted by their respective nations to exercise in voting for military action against an aggressor.

From the very moment UNO came into existence, however, it was evident that the success of the organization would hinge, not on this or that technical point or the creation of additional international machinery. Because of the veto power belonging to each of the Big Five in the Security Council, the only possibility that this new attempt to maintain peace could succeed lay in the possibility that the great powers, particularly the United States and Russia, could accommodate their basic interests.

TEXT OF THE CHARTER OF THE UNITED NATIONS

We The Peoples of the United Nations Determined

—to save succeeding generations from the scourge of war, which twice in our lifetime has brought untold sorrow to mankind, and
—to reaffirm faith in fundamental human rights, in the dignity and worth of the human person, in the equal rights of men and women and of nations large and small, and
—to establish conditions under which justice and respect for the obligations arising from treaties and other sources of international law can be maintained, and
—to promote social progress and better standards of life in larger freedom,

And For These Ends

—to practice tolerance and live together in peace with one another as good neighbors, and
—to unite our strength to maintain international peace and security, and
—to insure, by the acceptance of principles and the institution of methods, that armed force shall not be used, save in the common interest, and
—to employ international machinery for the promotion of the economic and social advancement of all peoples,

Have Resolved to Combine Our Efforts to Accomplish These Aims.

Accordingly, our respective governments, through representatives assembled in the city of San Francisco, who have exhibited their full powers found to be in good and due form, have agreed to the present charter of the United Nations and do hereby establish an international organization to be known as the United Nations.

CHAPTER I

PURPOSES AND PRINCIPLES

Article 1

The purposes of the United Nations are:

1. To maintain international peace and security, and to that end: to take effective collective measures for the prevention and removal of threats to the peace, and for the suppression of acts of aggression or other breaches of the peace, and to bring about by peaceful means, and in conformity with the principles of justice and international law, adjustment or settlement of international disputes or situations which might lead to a breach of peace;

2. To develop friendly relations among nations based on respect for the principle of equal rights and self-determination of peoples, and to take other appropriate measures to strengthen universal peace;

3. To achieve international cooperation in solving international problems of an economic, social, cultural, or humanitarian character, and in promoting and encouraging respect for human rights and for fundamental freedoms for all without distinction as to race, sex, language, or religion; and

4. To be a center for harmonizing the actions of nations in the attainment of these common ends.

Article 2

The organization and its members, in pursuit of the purposes stated in Article 1, shall act in accordance with the following principles:

1. The organization is based on the principle of the sovereign equality of all its members.

2. All members, in order to ensure to all of them the rights and benefits resulting from membership, shall fulfill in good faith the obligations assumed by them in accordance with the present charter.

3. All members shall settle their international disputes by peaceful means in such a manner that international peace and security, and justice, are not endangered.

4. All members shall refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any state, or in any other manner inconsistent with the purposes of the United Nations.

5. All members shall give the United Nations every assistance in any action it takes in accordance with the present charter, and shall refrain from giving assistance to any state against which the United Nations is taking preventive or enforcement action.

6. The organization shall ensure that states which are not members of the United Nations act in accordance with these principles so far as may be necessary for the maintenance of international peace and security.

7. Nothing contained in the present charter shall authorize the United Nations to intervene in matters which are essentially within the domestic jurisdiction of any state or shall require the members to submit such matters to settlement under the present charter; but this principle shall not prejudice the application of enforcement measures under Chapter VII.

CHAPTER II

MEMBERSHIP

Article 3

The original members of the United Nations shall be the states which, having participated in the United Nations Conference on International Organization at San Francisco or having previously signed the Declaration by United Nations of January 1, 1942, sign the present charter and ratify it in accordance with Article 110.

Article 4

1. Membership in the United Nations is open to all other peace-loving states which accept the obligations contained in the present charter and, in the judgment of the organization, are able and willing to carry out these obligations.

2. The admission of any such state to membership in the United Nations will be effected by a decision of the General Assembly upon the recommendation of the Security Council.

Article 5

A member of the United Nations against which preventive or enforcement action has been taken by the Security Council may be suspended from the exercise of the rights and privileges of membership by the General Assembly upon the recommendation of the Security Council. The exercise of these rights and privileges may be restored by the Security Council.

Article 6

A member of the United Nations which has persistently violated the principles contained in the present charter may be expelled from the organization by the General Assembly upon the recommendation of the Security Council.

CHAPTER III

ORGANS

Article 7

1. There are established as the principal organs of the United Nations: a General Assembly, a Security Council, an Economic and Social Council, a Trusteeship Council, an International Court of Justice, and a Secretariat.

2. Such subsidiary organs as may be found necessary may be established in accordance with the present charter.

Article 8

The United Nations shall place no restrictions on the eligibility of men and women to participate in any capacity and under conditions of equality in its principal and subsidiary organs.

CHAPTER IV

THE GENERAL ASSEMBLY

Composition

Article 9

1. The General Assembly shall consist of all the members of the United Nations.

2. Each member shall have not more than five representatives in the General Assembly.

Functions and Powers

Article 10

The General Assembly may discuss any questions or any matters within the scope of the present charter or relating to the powers and functions of any organs provided for in the present charter, and, except as provided in Article 12, may make recommendations to the members of the United Nations or to the Security Council or to both on any such questions or matters.

Article 11

1. The General Assembly may consider the general principles of cooperation in the maintenance of international peace and security, including the principles governing disarmament and the regulation of armaments, and may make recommendations with regard to such principles to the members or to the Security Council or to both.

2. The General Assembly may discuss any questions relating to the maintenance of international peace and security brought before it by any member of the United Nations, or by the Security Council, or by a state which is not a member of the United Nations in accordance with Article 35, paragraph 2, and, except as provided in Article 12, may make recommendations with regard to any such questions to the state or states concerned or to the Security Council or to both. Any such question on which action is necessary shall be referred to the Security Council by the General Assembly either before or after discussion.

3. The General Assembly may call the attention of the Security Council to situations which are likely to endanger international peace and security.

4. The powers of the General Assembly set forth in this article shall not limit the general scope of Article 10.

Article 12

1. While the Security Council is exercising in respect of any dispute or situation the functions assigned to it in the present charter, the General Assembly shall not make any recommendation with regard to that dispute or situation unless the Security Council so requests.

2. The Secretary-General, with the consent of the Security Council, shall notify the General Assembly at each session of any matters relative to the maintenance of international peace and security which are being dealt with by the Security Council and shall similarly notify the General Assembly at each session of any matters relative to the maintenance of international peace and security which are being dealt with by the Security Council and shall similarly notify the General Assembly, or the members of the United Nations if the General Assembly is not in session, immediately the Security Council ceases to deal with such matters.

Article 13

1. The General Assembly shall initiate studies and make recommendations for the purpose of:

A. Promoting international cooperation in the political field and encouraging the progressive development of international law and its codification;

B. Promoting international cooperation in the economic, social, cultural, educational, and health fields, and assisting in the realization of human rights and fundamental freedoms for all without distinction as to race, sex, language, or religion.

2. The further responsibilities, functions, and powers of the General Assembly with respect to matters mentioned in paragraph 1 (B) above are set forth in Chapters IX and X.

Article 14

Subject to the provisions of Article 12, the General Assembly may recommend measures for the peaceful adjustment of any situation, regardless of origin, which it deems likely to impair the general welfare or friendly relations among nations, including situations resulting from a violation of the provisions of the present charter setting forth the purposes and principles of the United Nations.

Article 15

1. The General Assembly shall receive and consider annual and special reports from the Security Council; these reports shall include an account of the measures that the Security Council has decided upon or taken to maintain international peace and security.

2. The General Assembly shall receive and consider reports from the other organs of the United Nations.

Article 16

The General Assembly shall perform such functions with respect to the international trusteeship system as are assigned to it under Chapters XII and XIII, including the approval of the trusteeship agreements for areas not designated as strategic.

Article 17

1. The General Assembly shall consider and approve the budget of the organization.

2. The expenses of the organization shall be borne by the members as apportioned by the General Assembly.

3. The General Assembly shall consider and approve any financial and budgetary arrangements with specialized agencies referred to in Article 57 and shall examine the administrative budgets of such specialized agencies with a view to making recommendations to the agencies concerned.

Voting

Article 18

1. Each member of the General Assembly shall have one vote.

2. Decisions of the General Assembly on important questions shall be made by a two-thirds majority of the members present and voting. These questions shall include: recommendations with respect to the maintenance of international peace and security, the election of the non-permanent members of the Security Council, the election of members of the Trusteeship Council in accordance with paragraph 1 (C) of Article 86, the admission of new members to the United Nations, the suspension of the rights and privileges of membership, the expulsion of members, questions relating to the operation of the trusteeship system, and budgetary questions.

3. Decisions on other questions, including the determination of additional categories of questions to be decided by a two-thirds majority, shall be made by a majority of the members present and voting.

Article 19

A member of the United Nations which is in arrears in the payment of its financial contributions to the organization shall have no vote in the General Assembly if the amount of its arrears equals or exceeds the amount of the contributions due from it for the preceding two full years. The General Assembly may, nevertheless, permit such a member to vote if it is satisfied that the failure to pay is due to conditions beyond the control of the member.

Procedure

Article 20

The General Assembly shall meet in regular annual sessions and in such special sessions as occasion may require. Special sessions shall be convoked by the Secretary-General at the request of the Security Council or of a majority of the members of the United Nations.

Article 21

The General Assembly shall adopt its own rules of procedure. It shall elect its President for each session.

Article 22

The General Assembly may establish such subsidiary organs as it deems necessary for the performance of its functions.

CHAPTER V

The Security Council

Composition

Article 23

1. The Security Council shall consist of eleven members of the United Nations. The Republic of China, France, the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland, and the United States of America shall be permanent members of the Security Council. The General Assembly shall elect six other members of the United Nations to be non-permanent members of the Security Council, due regard being specially paid, in the first instance to the contribution of members of the United Nations to the maintenance of international peace and security and to the other purposes of the organization, and also to equitable geographical distribution.

2. The non-permanent members of the Security Council shall be elected for a term of two years. In the first election of the non-permanent members, however, three shall be chosen for a term of one year. A retiring member shall not be eligible for immediate re-election.

3. Each member of the Security Council shall have one representative.

Functions and Powers

Article 24

1. In order to ensure prompt and effective action by the United Nations, its members confer on the Security Council primary responsibility for the maintenance of international peace and security, and agree that in carrying out its duties under this responsibility the Security Council acts on their behalf.

2. In discharging these duties the Security Council shall act in accordance with the purposes and principles of the United Nations. The specific powers granted to the Security Council for the discharge of these duties are laid down in Chapters VI, VII, VIII, and XII.

3. The Security Council shall submit annual and, when necessary, special reports to the General Assembly for its consideration.

Article 25

The members of the United Nations agree to accept and carry out the decisions of the Security Council in accordance with the present charter.

Article 26

In order to promote the establishment and maintenance of international peace and security with the least diversion for armaments of the world's human and economic resources, the Security Council shall be responsible for formulating, with the assistance of the Military Staff Committee referred to in Article 47, plans to be submitted to the members of the United Nations for the establishment of a system for the regulation of armaments.

Voting

Article 27

1. Each member of the Security Council shall have one vote.

2. Decisions of the Security Council on procedural matters shall be made by an affirmative vote of seven members.

3. Decisions of the Security Council on all other matters shall be made by an affirmative vote of seven members including the concurring votes of the permanent members; provided that, in decisions under Chapter VI, and under paragraph 3 of Article 52, a party to a dispute shall abstain from voting.

Procedure

Article 28

1. The Security Council shall be so organized as to be able to function continuously. Each member of the Security Council shall for this purpose be represented at all times at the seat of the organization.

2. The Security Council shall hold periodic meetings at which each of its members may, if it so desires, be rep-

resented by a member of the government or by some other specially designated representative.

3. The Security Council may hold meetings at such places other than the seat of the organization as in its judgment will best facilitate its work.

Article 29

The Security Council may establish such subsidiary organs as it deems necessary for the performance of its functions.

Article 30

The Security Council shall adopt its own rules of procedure, including the method of selecting its President.

Article 31

Any member of the United Nations which is not a member of the Security Council may participate, without vote, in the discussion of any question brought before the Security Council whenever the latter considers that the interests of that member are specially affected.

Article 32

Any member of the United Nations which is not a member of the Security Council or any state which is not a member of the United Nations, if it is a party to a dispute under consideration by the Security Council, shall be invited to participate, without vote, in the discussion relating to the dispute. The Security Council shall lay down such conditions as it deems just for the participation of a state which is not a member of the United Nations.

CHAPTER VI

Pacific Settlement of Disputes

Article 33

1. The parties to any dispute, the continuance of which is likely to endanger the maintenance of international peace and security, shall, first of all, seek a solution by negotiation, enquiry, mediation, conciliation, arbitration, judicial settlement, resort to regional agencies or arrangements, or other peaceful means of their own choice.

2. The Security Council shall, when it deems necessary, call upon the parties to settle their dispute by such means.

Article 34

The Security Council may investigate any dispute, or any situation which might lead to international friction or give rise to a dispute in order to determine whether the continuance of the dispute or situation is likely to endanger the maintenance of international peace and security.

Article 35

1. Any member of the United Nations may bring any dispute or any situation of the nature referred to in Article 34 to the attention of the Security Council or of the General Assembly.

2. A state which is not a member of the United Nations may bring to the attention of the Security Council or of the General Assembly any dispute to which it is a party if it accepts in advance, for the purposes of the dispute, the obligations of pacific settlement provided in the present charter.

3. The proceedings of the General Assembly in respect of matters brought to its attention under this article will be subject to the provisions of Articles 11 and 12.

Article 36

1. The Security Council may, at any stage of a dispute of the nature referred to in Article 33 or of a situation of like nature, recommend appropriate procedures or methods of adjustment.

2. The Security Council should take into consideration any procedures for the settlement of the dispute which have already been adopted by the parties.

3. In making recommendations under this article the Security Council should also take into consideration that legal disputes should as a general rule be referred by the parties to

the International Court of Justice in accordance with the provisions of the Statute of the Court.

Article 37

1. Should the parties to a dispute of the nature referred to in Article 33 fail to settle it by the means indicated in that article, they shall refer it to the Security Council.

2. If the Security Council deems that the continuance of the dispute is in fact likely to endanger the maintenance of international peace and security, it shall decide whether to take action under Article 36 or to recommend such terms of settlement as it may consider appropriate.

Article 38

Without prejudice to the provisions of Article 33-37 the Security Council may, if all the parties to any dispute so request, make recommendations to the parties with a view to a pacific settlement of the dispute.

CHAPTER VII

Action with Respect to Threats to the Peace, Breaches of the Peace, and Acts of Aggression

Article 39

The Security Council shall determine the existence of any threat to the peace, breach of the peace, or act of aggression and shall make recommendations, or decide what measures shall be taken in accordance with Articles 41 and 42, to maintain or restore international peace and security.

Article 40

In order to prevent an aggravation of the situation, the Security Council may, before making the recommendations or deciding upon the measures provided for in Article 39, call upon the parties concerned to comply with such provisional measures as it deems necessary or desirable. Such provisional measures shall be without prejudice to the rights, claims, or position of the parties concerned. The Security Council shall duly take account of failure to comply with such provisional measures.

Article 41

The Security Council may decide what measures not involving the use of armed force are to be employed to give effect to its decisions, and it may call upon the members of the United Nations to apply such measures. These may include complete or partial interruption of economic relations and of rail, sea, air, postal, telegraphic, radio, and other means of communications, and the severance of diplomatic relations.

Article 42

Should the Security Council consider that measures provided for in Article 41 would be inadequate or have proved to be inadequate, it may take such action by air, sea, or land forces as may be necessary to maintain or restore international peace and security. Such action may include demonstrations, blockade, and other operations by air, sea, or land forces of members of the United Nations.

Article 43

1. All members of the United Nations, in order to contribute to the maintenance of international peace and security, undertake to make available to the Security Council, on its call and in accordance with a special agreement or agreements, armed forces, assistance, and facilities, including rights of passage, necessary for the purpose of maintaining international peace and security.

2. Such agreement or agreements shall govern the numbers and types of forces, their degree of readiness and general location, and the nature of the facilities and assistance to be provided.

3. The agreement or agreements shall be negotiated as soon as possible on the initiative of the Security Council. They shall be concluded between the Security Council and members or between the Security Council and groups of members and shall be subject to ratification by the signa-

tory states in accordance with their respective constitutional processes.

Article 44

When the Security Council has decided to use force it shall, before calling upon a member not represented on it to provide armed forces in fulfilment of the obligations assumed under Article 43, invite that member, if the member so desires, to participate in the decisions of the Security Council concerning the employment of contingents of that member's armed forces.

Article 45

In order to enable the United Nations to take urgent military measures, members shall hold immediately available national air-force contingents for combined international enforcement action. The strength and degree of readiness of these contingents and plans for their combined action shall be determined, within the limits laid down in the special agreement or agreements referred to in Article 43, by the Security Council with the assistance of the Military Staff Committee.

Article 46

Plans for the application of armed force shall be made by the Security Council with the assistance of the Military Staff Committee.

Article 47

1. There shall be established a Military Staff Committee to advise and assist the Security Council on all questions relating to the Security Council's military requirements for the maintenance of international peace and security, the employment and command of forces placed at its disposal, the regulation of armaments, and possible disarmament.

2. The Military Staff Committee shall consist of the Chiefs of Staff of the permanent members of the Security Council or their representatives. Any member of the United Nations not permanently represented on the Committee shall be invited by the Committee to be associated with it when the efficient discharge of the Committee's responsibilities requires the participation of that member in its work.

3. The Military Staff Committee shall be responsible under the Security Council for the strategic direction of any armed forces placed at the disposal of the Security Council. Questions relating to the command of such forces shall be worked out subsequently.

4. The Military Staff Committee, with the authorization of the Security Council and after consultation with appropriate regional agencies, may establish regional subcommittees.

Article 48

1. The action required to carry out the decisions of the Security Council for the maintenance of international peace and security shall be taken by all the members of the United Nations or by some of them, as the Security Council may determine.

2. Such decisions shall be carried out by the members of the United Nations directly and through their action in the appropriate international agencies of which they are members.

Article 49

The members of the United Nations shall join in affording mutual assistance in carrying out the measures decided upon by the Security Council.

Article 50

If preventive or enforcement measures against any state are taken by the Security Council, any other state, whether a member of the United Nations or not, which finds itself confronted with special economic problems arising from the carrying out of those measures shall have the right to consult the Security Council with regard to a solution of those problems.

Article 51

Nothing in the present charter shall impair the inherent right of individual or collective self-defense if an armed attack occurs against a member of the United Nations, until the Security Council has taken the measures necessary to maintain international peace and security. Measures taken by members in the exercise of this right of self-defense shall be immediately reported to the Security Council and shall not in any way affect the authority and responsibility of the Security Council under the present charter to take at any time such action as it deems necessary in order to maintain or restore international peace and security.

CHAPTER VIII

Regional Arrangements

Article 52

1. Nothing in the present charter precludes the existence of regional arrangements or agencies for dealing with such matters relating to the maintenance of international peace and security as are appropriate for regional action, provided that such arrangements or agencies and their activities are consistent with the purposes and principles of the United Nations.

2. The members of the United Nations entering into such arrangements or constituting such agencies shall make every effort to achieve pacific settlement of local disputes through such regional arrangements or by such regional agencies before referring them to the Security Council.

3. The Security Council shall encourage the development of pacific settlement of local disputes through such regional arrangements or by such regional agencies either on the initiative of the states concerned or by reference from the Security Council.

4. This article in no way impairs the application of Articles 34 and 35.

Article 53

1. The Security Council shall, where appropriate, utilize such regional arrangements or agencies for enforcement action under its authority. But no enforcement action shall be taken under regional arrangements or by regional agencies without the authorization of the Security Council, with the exception of measures against any enemy state, as defined in paragraph 2 of this article, provided for pursuant to Article 107 or in regional arrangements directed against renewal of aggressive policy on the part of any such state, until such time as the organization may, on request of the governments concerned, be charged with the responsibility for preventing further aggression by such a state.

2. The term enemy state as used in paragraph 1 of this article applies to any state which during the Second World War has been an enemy of any signatory of the present charter.

Article 54

The Security Council shall at all times be kept fully informed of activities undertaken or in contemplation under regional arrangements or by regional agencies for the maintenance of international peace and security.

CHAPTER IX

International Economic and Social Cooperation

Article 55

With a view to the creation of conditions of stability and well-being which are necessary for peaceful and friendly relations among nations based on respect for the principle of equal rights and self-determination of peoples, the United Nations shall promote:

A. Higher standards of living, full employment, and conditions of economic and social progress and development;

B. Solutions of international economic, social, health, and related problems; and international cultural and educational cooperation; and

C. Universal respect for, and observance of, human rights and fundamental freedoms for all without distinction as to race, sex, language or religion.

Article 56

All members pledge themselves to take joint and separate action in cooperation with the organization for the achievement of the purposes set forth in Article 55.

Article 57

1. The various specialized agencies, established by intergovernmental agreement and having wide international responsibilities, as defined in their basic instruments, in economic, social, cultural, educational, health, and related fields, shall be brought into relationship with the United Nations in accordance with the provisions of Article 63.

2. Such agencies thus brought into relationship with the United Nations are hereinafter referred to as specialized agencies.

Article 58

The organization shall make recommendations for the coordination of the policies and activities of the specialized agencies.

Article 59

The organization shall, where appropriate, initiate negotiations among the states concerned for the creation of any new specialized agencies required for the accomplishment of the purposes set forth in Article 55.

Article 60

Responsibility for the discharge of the functions of the organization set forth in this chapter shall be vested in the General Assembly and, under the authority of the General Assembly, in the Economic and Social Council, which shall have for this purpose the powers set forth in Chapter X.

CHAPTER X

The Economic and Social Council

Composition

Article 61

1. The Economic and Social Council shall consist of eighteen members of the United Nations elected by the General Assembly.

2. Subject to the provisions of paragraph 3, six members of the Economic and Social Council shall be elected each year for a term of three years. A retiring member shall be eligible for immediate re-election.

3. At the first election, eighteen members of the Economic and Social Council shall be chosen. The term of office of six members so chosen shall expire at the end of one year, and of six other members at the end of two years, in accordance with arrangements made by the General Assembly.

4. Each member of the Economic and Social Council shall have one representative.

Functions and Powers

Article 62

1. The Economic and Social Council may make or initiate studies and reports with respect to international economic, social, cultural, educational, health, and related matters and may make recommendations with respect to any such matters to the General Assembly, to the members of the United Nations, and to the specialized agencies concerned.

2. It may make recommendations for the purpose of promoting respect for, and observance of, human rights and fundamental freedoms for all.

3. It may prepare draft conventions for submission to the General Assembly, with respect to matters falling within its competence.

4. It may call, in accordance with the rules prescribed by the United Nations, international conferences on matters falling within its competence.

Article 63

1. The Economic and Social Council may enter into agreements with any of the agencies referred to in Article 57, defining the terms on which the agency concerned shall be brought into relationship with the United Nations. Such agreements shall be subject to approval by the General Assembly.

2. It may coordinate the activities of the specialized agencies through consultation with and recommendations to such agencies and through recommendations to the General Assembly and to the members of the United Nations.

Article 64

1. The Economic and Social Council may take appropriate steps to obtain regular reports from the special-

ized agencies. It may make arrangements with the members of the United Nations and with the specialized agencies to obtain reports on the steps taken to give effect to its own recommendations and to recommendations on matters falling within its competence made by the General Assembly.

2. It may communicate its observations on these reports to the General Assembly.

Article 65

The Economic and Social Council may furnish information to the Security Council and shall assist the Security Council upon its request.

Article 66

1. The Economic and Social Council shall perform such functions as fall within its competence in connection with the carrying out of the recommendations of the General Assembly.

2. It may, with the approval of the General Assembly, perform services at the request of members of the United Nations and at the request of specialized agencies.

3. It shall perform such other functions as are specified elsewhere in the present charter or as may be assigned to it by the General Assembly.

Voting

Article 67

1. Each member of the Economic and Social Council shall have one vote.

2. Decisions of the Economic and Social Council shall be made by a majority of the members present and voting.

Procedure

Article 68

The Economic and Social Council shall set up commissions in economic and social fields and for the promotion of human rights, and such other commissions as may be required for the performance of its functions.

Article 69

The Economic and Social Council shall invite any member of the United Nations to participate, without vote, in its deliberations on any matter of particular concern to that member.

Article 70

The Economic and Social Council may make arrangements for representatives of the specialized agencies to participate, without vote, in its deliberations and in those of the commissions established by it, and for its representatives to participate in deliberations of the specialized agencies.

Article 71

The Economic and Social Council may make suitable arrangements for consultation with non-governmental organizations which are concerned with matters within its competence. Such arrangements may be made with international organizations and, where appropriate, with national organizations after consultation with the member of the United Nations concerned.

Article 72

1. The Economic and Social Council shall adopt its own rules of procedure, including the method of selecting its President.

2. The Economic and Social Council shall meet as required in accordance with its rules, which shall include provision for the convening of meetings on the request of a majority of its members.

CHAPTER XI

DECLARATION REGARDING NON-SELF-GOVERNING TERRITORIES

Article 73

Members of the United Nations, which have or assume responsibilities for the administration of territories whose peoples have not yet attained a full measure of self-government recognize the principle that the interests of the inhabitants of these territories are paramount, and accept as a sacred trust the obligation to promote to the utmost, within the system of international peace and security established by the present charter, the well-being of the inhabitants of these territories, and, to this end:

A. To ensure, with due respect for the culture of the peoples concerned, their political, economic, social, and educational advancement, their just treatment, and their protection against abuses;

B. To develop self-government, to take due account of the political aspirations of the peoples, and to assist them in the progressive development of their free political institutions, according to the particular circumstances of each territory and its peoples and their varying stages of advancement;

C. To further international peace and security;

D. To promote constructive measures of development, to encourage research, and to cooperate with one another and, when and where appropriate, with specialized international bodies with a view to the practical achievement of the social, economic, and scientific purposes set forth in this article; and

E. To transmit regularly to the Secretary-General for information purposes, subject to such limitation as security and constitutional considerations may require, statistical and other information of a technical nature relating to economic, social, and educational conditions in the territories for which they are respectively responsible other than those territories to which Chapters XII and XIII apply.

Article 74

Members of the United Nations also agree that their policy in respect of the territories to which this chapter applies, no less than in respect of their metropolitan areas must be based on the general principle of good-neighborliness, due account being taken of the interests and well-being of the rest of the world, in social, economic, and commercial matters.

CHAPTER XII

INTERNATIONAL TRUSTEESHIP SYSTEM

Article 75

The United Nations shall establish under its authority an international trusteeship system for the administration and supervision of such territories as may be placed thereunder by subsequent individual agreements. These territories are hereinafter referred to as trust territories.

Article 76

The basic objectives of the trusteeship system, in accordance with the purposes of the United Nations laid down in Article 1 of the present charter, shall be:

A. To further international peace and security;

B. To promote the political, economic, social and educational advancement of the inhabitants of the trust territories, and their progressive development towards self-government or independence as may be appropriate to the particular circumstances of each territory and its peoples and the freely expressed wishes of the peoples concerned, and as may be provided by the terms of each trusteeship agreement:

C. To encourage respect for human rights and for fundamental freedoms for all without distinction as to race, sex, language, or religion, and to encourage recognition of the interdependence of the peoples of the world; and

D. To ensure equal treatment in social, economic, and commercial matters for all members of the United Nations and their nationals, and also equal treatment for the latter in the administration of justice, without prejudice to the attainment of the foregoing objectives and subject to the provisions of Article 80.

Article 77

1. The trusteeship system shall apply to such territories in the following categories as may be placed thereunder by means of trusteeship agreements:

A. Territories now held under mandate;

B. Territories which may be detached from enemy states as a result of the Second World War; and

C. Territories voluntarily placed

under the system by states responsible for their administration.

2. It will be a matter for subsequent agreement as to which territories in the foregoing categories will be brought under the trusteeship system and upon what terms.

Article 78

The trusteeship system shall not apply to territories which have become members of the United Nations, relationship among which shall be based on respect for the principle of sovereign equality.

Article 79

The terms of trusteeship for each territory to be placed under the trusteeship system, including any alteration or amendment, shall be agreed upon by the states directly concerned, including the mandatory power in the case of territories held under mandate by a member of the United Nations, and shall be approved as provided for in Articles 83 and 85.

Article 80

1. Except as may be agreed upon in individual trusteeship agreements, made under Articles 77, 79, and 81, placing each territory under the trusteeship system, and until such agreements have been concluded, nothing in this chapter shall be construed in or of itself to alter in any manner the rights whatsoever of any states or any peoples or the terms of existing international instruments to which members of the United Nations may respectively be parties.

2. Paragraph 1 of this article shall not be interpreted as giving grounds for delay or postponement of the negotiation and conclusion of agreements for placing mandated and other territories under the trusteeship system as provided for in Article 77.

Article 81

The trusteeship agreement shall in each case include the terms under which the trust territory will be administered and designate the authority which will exercise the administration of the trust territory. Such authority, hereinafter called the administering authority, may be one or more states or the organization itself.

Article 82

There may be designated, in any trusteeship agreement, a strategic area or areas which may include part or all of the trust territory to which the agreement applies, without prejudice to any special agreement or agreements made under Article 43.

Article 83

1. All functions of the United Nations relating to strategic areas including the approval of the terms of the trusteeship agreements and of their alteration or amendment shall be exercised by the Security Council.

2. The basic objectives set forth in Article 76 shall be applicable to the people of each strategic area.

3. The Security Council shall, subject to the provisions of the trusteeship agreements and without prejudice to security considerations, avail itself of the assistance of the Trusteeship Council to perform those functions of the United Nations under the trusteeship system relating to political, economic, social, and educational matters in the strategic areas.

Article 84

It shall be the duty of the administering authority to ensure that the trust territory shall play its part in the maintenance of international peace and security. To this end the administering authority may make use of volunteer forces, facilities, and assistance from the trust territory in carrying out the obligations towards the Security Council undertaken in this regard by the administering authority, as well as for local defense and the maintenance of law and order within the trust territory.

Article 85

1. The functions of the United Nations with regard to trusteeship agreements for all areas not designated as strategic, including the approval of the terms of the trusteeship agreements and of their alteration or amendment, shall be exercised by the General Assembly.

2. The Trusteeship Council, operating under the authority of the General Assembly, shall assist the General Assembly in carrying out these functions.

CHAPTER XIII

The Trusteeship Council

Composition

Article 86

1. The Trusteeship Council shall consist of the following members of the United Nations:

A. Those members administering trust territories;

B. Such of those members mentioned by name in Article 23 as are not administering trust territories; and

C. As many other members elected for three-year terms by the General Assembly as may be necessary to ensure that the total number of members of the Trusteeship Council is equally divided between those members of the United Nations which administer trust territories and those which do not.

2. Each member of the Trusteeship Council shall designate one specially qualified person to represent it therein.

Functions and Powers

Article 87

The General Assembly and, under its authority, the Trusteeship Council, in carrying out their functions, may:

A. Consider reports submitted by the administering authority;

B. Accept petitions and examine them in consultation with the administering authority;

C. Provide for periodic visits to the respective trust territories at times agreed upon with the administering authority; and

D. Take these and other actions in conformity with the terms of the trusteeship agreements.

Article 88

The Trusteeship Council shall formulate a questionnaire on the political, economic, social and educational advancement of the inhabitants of each trust territory, and the administering authority for each trust territory within the competence of the General Assembly shall make an annual report to the General Assembly upon the basis of such questionnaire.

Voting

Article 89

1. Each member of the Trusteeship Council shall have one vote.

2. Decisions of the Trusteeship Council shall be made by a majority of the members present and voting.

Procedure

Article 90

1. The Trusteeship Council shall adopt its own rules of procedure, including the method of selecting its President.

2. The Trusteeship Council shall meet as required in accordance with its rules, which shall include provision for the convening of meetings on the request of a majority of its members.

Article 91

The Trusteeship Council shall, when appropriate, avail itself of the assistance of the Economic and Social Council and of the specialized agencies in regard to matters with which they are respectively concerned.

CHAPTER XIV

The International Court of Justice

Article 92

The International Court of Justice shall be the principal judicial organ of the United Nations. It shall function in accordance with the annexed Statute, which is based upon the Statute of the Permanent Court of International Justice and forms an integral part of the present charter.

Article 93

1. All members of the United Nations are ipso facto parties to the

Statute of the International Court of Justice.

2. A state which is not a member of the United Nations may become a party to the Statute of the International Court of Justice on conditions to be determined in each case by the General Assembly upon the recommendation of the Security Council.

Article 94

1. Each member of the United Nations undertakes to comply with the decision of the International Court of Justice in any case to which it is a party.

2. If any party to a case fails to perform the obligations incumbent upon it under a judgment rendered by the Court, the other party may have recourse to the Security Council, which may, if it deems necessary, make recommendations or decide upon measures to be taken to give effect to the judgment.

Article 95

Nothing in the present charter shall prevent members of the United Nations from entrusting the solution of their differences to other tribunals by virtue of agreements already in existence or which may be concluded in the future.

Article 96

1. The General Assembly or the Security Council may request the International Court of Justice to give an advisory opinion on any legal question.

2. Other organs of the United Nations and specialized agencies, which may at any time be so authorized by the General Assembly, may also request advisory opinions of the Court on legal questions arising within the scope of their activities.

CHAPTER XV

THE SECRETARIAT

Article 97

The Secretariat shall comprise a Secretary-General and such staff as the organization may require. The Secretary-General shall be appointed by the General Assembly upon the recommendation of the Security Council. He shall be the chief administrative officer of the organization.

Article 98

The Secretary-General shall act in that capacity in all meetings of the General Assembly, of the Security Council, of the Economic and Social Council, and of the Trusteeship Council, and shall perform such other functions as are entrusted to him by these organs. The Secretary-General shall make an annual report to the General Assembly on the work of the organization.

Article 99

The Secretary-General may bring to the attention of the Security Council any matter which in his opinion may threaten the maintenance of international peace and security.

Article 100

1. In the performance of their duties the Secretary-General and the staff shall not seek or receive instructions from any government or from any other authority external to the organization. They shall refrain from any action which might reflect on their position as international officials responsible only to the organization.

2. Each member of the United Nations undertakes to respect the exclusively international character of the responsibilities of the Secretary-General and the staff and not to seek to influence them in the discharge of their responsibilities.

Article 101

1. The staff shall be appointed by the Secretary-General under regulations established by the General Assembly.

2. Appropriate staffs shall be permanently assigned to the Economic and Social Council, the Trusteeship Council, and, as required, to other organs of the United Nations. These

staffs shall form a part of the Secretariat.

3. The paramount consideration in the employment of the staff and in the determination of the conditions of service shall be the necessity of securing the highest standards of efficiency, competence, and integrity. Due regard shall be paid to the importance of recruiting the staff on as wide a geographical basis as possible.

CHAPTER XVI

Miscellaneous Provisions

Article 102

1. Every treaty and every international agreement entered into by any member of the United Nations after the present charter comes into force shall as soon as possible be registered with the Secretariat and published by it.

2. No party to any such treaty or international agreement which has not been registered in accordance with the provisions of paragraph 1 of this article may invoke that treaty or agreement before any organ of the United Nations.

Article 103

In the event of a conflict between the obligations of the members of the United Nations under the present charter and their obligations under any other international agreement, their obligations under the present charter shall prevail.

Article 104

The organization shall enjoy in the territory of each of its members such legal capacity as may be necessary for the exercise of its functions and the fulfillment of its purposes.

Article 105

1. The organization shall enjoy in the territory of each of its members such privileges and immunities as are necessary for the fulfillment of its purposes.

2. Representatives of the members of the United Nations and officials of the organization shall similarly enjoy such privileges and immunities as are necessary for the independent exercise of their functions in connection with the organization.

3. The General Assembly may make recommendations with a view to determining the details of the application of paragraphs 1 and 2 of this article or may propose conventions to the members of the United Nations for this purpose.

CHAPTER XVII

Transitional Security Arrangements

Article 106

Pending the coming into force of such special agreements referred to in Article 43 as in the opinion of the Security Council enable it to begin the exercise of its responsibilities under Article 42, the parties to the Four-Nation Declaration, signed at Moscow, October 30, 1943, and France, shall, in accordance with the provisions of paragraph 5 of that declaration, consult with one another and as occasion requires with other members of the United Nations with a view to such joint action on behalf of the organization as may be necessary for the purpose of maintaining international peace and security.

Article 107

Nothing in the present charter shall invalidate or preclude action, in relation to any state which during the Second World War has been an enemy of any signatory to the present charter, taken or authorized as a result of that war by the governments having responsibility for such action.

CHAPTER XVIII

Amendments

Article 108

Amendments to the present charter shall come into force for all members of the United Nations when they have been adopted by a vote of two-thirds of the members of the General Assembly and ratified in accordance with their respective constitutional processes by two-thirds of the members of the United Nations, including all the permanent members of the Security Council.

Article 109

1. A general conference of the members of the United Nations for the purpose of reviewing the present charter may be held at a date and place to be fixed by a two-thirds vote of the members of the General Assembly and by a vote of any seven members of the Security Council. Each member of the United Nations shall have one vote in the conference.

2. Any alteration of the present charter recommended by a two-thirds vote of the conference shall take effect when ratified in accordance with their respective constitutional processes by two-thirds of the members of the United Nations including all the permanent members of the Security Council.

3. If such a conference has not been held before the tenth annual session of the General Assembly following the coming into force of the present charter, the proposal to call such a conference shall be placed on the agenda of that session of the General Assembly, and the conference shall be held if so decided by a majority vote of the members of the General Assembly and by a vote of any seven members of the Security Council.

CHAPTER XIX

Ratification and Signature

Article 110

1. The present charter shall be ratified by the signatory states in accordance with their respective constitutional processes.

2. The ratifications shall be deposited with the Government of the United States of America, which shall notify all the signatory states of each deposit as well as the Secretary-General of the organization when he has been appointed.

3. The present charter shall come into force upon the deposit of ratifications by the Republic of China, France, the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland, and the United States of America, and by a majority of the other signatory states. A protocol of the ratifications deposited shall thereupon be drawn up by the Government of the United States of America which shall communicate copies thereof to all the signatory states.

4. The states signatory to the present charter which ratify it after it has come into force will become original members of the United Nations on the date of the deposit of their respective ratifications.

Article 111

The present charter, of which the Chinese, French, Russian, English and Spanish texts are equally authentic, shall remain deposited in the archives of the Government of the United States of America. Duly certified copies thereof shall be transmitted by that government to the governments of the other signatory states.

IN FAITH WHEREOF the representatives of the governments of the United Nations have signed the present charter.

Done at the city of San Francisco the twenty-sixth day of June, one thousand nine hundred and forty-five.

THE WAR IN EUROPE: LAST PHASE

By Winifred Nelson Hadsel
Research Associate, Foreign Policy Association

THE WESTERN FRONT

At the close of 1944 the German armies in the West made a final desperate effort to stave off disaster by launching a counterattack, the immediate aim of which was to capture Liège (key American supply center), cross the Meuse, and divide the British from the Americans by taking Antwerp. Combined Anglo-American might stopped the Germans, however, and the "battle of the bulge" was nearly over by the end of January, 1945. As a result of this attempt the Germans succeeded in delaying the main Allied offensive in the North nearly six weeks. The cost of this effort was so great, however, that the Reich was stripped of all strategic reserves and resources required to meet the powerful Soviet offensive in the East.

Once the German counterattack had been halted by the American First and Third Armies, the British Second Army took the offensive in the Sitard area in mid-January, and within a fortnight reached the Roer Valley, ten miles inside Germany. Meanwhile, in the South, the French First Army and the U. S. XXI Corps attacked in the Colmar area, and by Feb. 9 held a loosely defended line along the west bank of the Rhine from Strasbourg to the Swiss border.

THE CROSSING OF THE RHINE

Before the Germans could be cleared from the entire west bank of the Rhine, it was necessary for the Allies to seize the Roer River dams to the north in the vicinity of Schmidt. By Feb. 11, the U. S. First Army gained control of the Urft and Schwammanauel dams and cleared the entire west bank of the Roer. This action failed to prevent flooding of the Roer Valley, but it did force the Germans to release the waters at a moment when Allied operations would not be seriously affected. In this way, one of the serious threats to General Eisenhower's plans for the invasion of northern Germany was removed.

The objectives of the next phase of the Allied campaign in the West were the closing of the Rhine, the destruction of enemy forces west of the river, and the seizure of bridgeheads across the river. In executing plans for these operations, the First Canadian Army, at the northern end of the western front, began a drive southeastward from the Nijmegen bridgehead along the watershed between the Meuse and Rhine rivers on Feb. 8, while the American Ninth Army attacked across the Roer toward Duesseldorf on Feb. 23. Flooded terrain hindered the Canadians, but by March 2 their armored columns reached the Rhine north and south of Duesseldorf. Meanwhile, in the middle of the Allied line, the U. S. Third Army crossed the Saar river and took Trier on March 2.

Advancing on the right of the Ninth Army, the U. S. First Army captured the ruins of Cologne on March 7, and on the same day elements of the 9th Armored Division, probing the Rhine farther south, found the Ludendorff Bridge at Remagen intact. Crossing immediately to the east bank, these American units developed a small bridgehead. This brilliant seizure of the Remagen bridge was one of the most dramatic incidents on the western front, and, according to General Marshall, showed "American initiative and adaptability at its best." The Remagen bridgehead was immediately exploited, in accordance with direct orders from General Eisenhower, and proved a useful springboard for the final Allied plunge into Germany.

In the meantime, the U. S. Third Army forced its way through the Eifel hills, and General Patton's armor broke out toward the Rhine near Coblenz, where contact was established with U. S. First Army units southeast of Remagen. By March 11, the Allies controlled the west bank of the Rhine from Nijmegen in Holland to Coblenz. Thereupon the U. S. Third and Seventh Armies turned to reducing the Saar pocket, an operation which involved breaking through strongly fortified areas of the Siegfried Line.

OFFENSIVE BEYOND THE RHINE

By the end of March, the Rhine had been crossed at a number of points, and the freedom of action of the Germans on the east bank was greatly curtailed. General Eisenhower began to prepare his offensive beyond the Rhine, selecting for the main effort the area north of the Ruhr. This area was chosen in order to deny to Germany the remaining Ruhr industries and to take advantage of the gently rolling terrain, which was highly suitable for the type of mobile and tank operations it was desired to force upon the Wehrmacht because of its shortages of tanks, vehicles, and fuel.

The Second British Army began an assault crossing of the Rhine on March 23 between Emmerich and Wesel and was aided shortly thereafter by the U. S. 17th and British 6th Airborne Divisions, and the U. S. Ninth Army. Within two days the British and Americans had built seven bridges across the river and had a bridgehead 25 miles along the Rhine.

To the surprise of the Germans, who had expected the U. S. First Army to strike northward, General Hodges broke out of the Remagen bridgehead to the southeast and raced along the superhighway toward Frankfort at the end of March. First Army armored columns speeded eastward as fast as 40 miles a day, reaching Marburg by March 28, and then swung northward through the hill country west of Kassel. Third Army troops, meanwhile, crossed the Rhine at Mainz, driving toward Kassel.

Once the U. S. First and Third Armies were in solid contact, these forces had the complete rout of the German military establishment under way. In the rear of these Armies, the U. S. Ninth Army pressed into the northwestern section of the Ruhr, the U. S. Seventh Army crossed the Rhine in the south near Mannheim, and the First French Army also crossed the river and established contact with the U. S. Seventh Army near Heidelberg.

THRUST INTO CENTRAL GERMANY AND AUSTRIA—JUNCTURE WITH RED ARMY

The strength of the Allied offensive, coupled with the shattered condition of the German transport system, prevented the enemy from establishing a defensive line in any sector. Armored columns of the U. S. First and Ninth Armies continued to speed into Germany, headed for Leipzig and a prearranged junction with the Red Army. By mid-April, American troops were along the Elbe near Wittenberg and Magdeburg and had established bridgeheads across the river. Bypassing Leipzig, the First Army drove eastward to the Mulde Valley south of Dessau. To establish contact with the Red Army, First Army patrols pushed east of the Mulde to Torgau, where the juncture with the Russians occurred April 25.

While these extensive operations were occurring in central Germany, the battle progressed against the trapped Germans in the Ruhr. To the South, the Third Army turned southeast toward Czechoslovakia and the Danube Valley in order to establish firm contact with the Red Army in Austria and to prevent effective German regrouping in the "mountain redoubt" in southern Germany. On May 1, the Third Army advanced into Czechoslovakia and, by May 5, entered Linz, while the Seventh Army, which had taken Munich, was moving southward toward the Inn River, and the French were moving into western Austria.

THE GERMAN SURRENDER

On May 6 the German Army Group "G," comprising all German forces in Austria, surrendered unconditionally.

On May 7, surrounded on all fronts by overwhelming defeat, emissaries of the German Government surrendered unconditionally all their land, sea, and air forces to the Allies at Reims. The following day, representatives of the German High Command signed another act of military surrender to the Allies in Berlin, on territory occupied by the Russians.

ALLIED REJECTION OF HITLER SUCCESSORS

In accepting the unconditional surrender of the German armies, the Allies refused to recognize the existence of any German régime. Gestapo Chief Heinrich Himmler, who attempted to open peace negotiations with Britain and the United States in what was apparently a final Nazi effort to divide the Western Allies and Russia, was promptly spurned. Although Grand Admiral Karl Doenitz was used by Anglo-American military authorities May 2-May 16 to issue surrender orders to scattered units of the U-boat fleet and to expedite disarmament of the Wehrmacht, his argument that the victors would need the aid of the German High Command in controlling Germany was ignored. On May 16 the Allies arrested the members of his régime and undertook the occupation of the Reich without the aid of any German authority.

THE EASTERN FRONT

The Russian winter offensive began to roll across the Polish plains on Jan. 12, 1945, thus breaking the lull on this principal eastern front. From East Prussia to the Carpathians, five Russian armies drove rapidly across territory that had been held by the Germans since September 1939. The basic Russian strategy resembled the pattern used by Napoleon at Austerlitz 140 years before—"penetration of the center in order to develop the wings." The main attack was accordingly directed straight across Poland, while the armies on the right and left kept wheeling to push out the flanks.

In the southern sector of the Russian line, the springboard was the Sandimierz salient across the southern Vistula, which the Russians had won in the preceding summer offensive. In mid-January, Marshal Koneff broke through in this area and overran nearly all of German-occupied southern Poland. The Red Army then took the railroad hub of Kulce, sped on to capture the manufacturing and communications center of Czestchowa, and engulfed Cracow. One of the main objectives of these forces was to drive into Silesia, important for its coal and iron mines, armaments factories and synthetic oil plants.

In the northern sector, the Second White Russian Army under Marshal Konstantin Kokossovsky moved from its bridgehead on the Narew River, skirted the Masurian Lakes, and moved toward Danzig. Meanwhile the Third White Russian Army under Marshal Ivan Cherniakovsky struck directly into East Prussia from the Kaunas area.

In the central sector, the Red Army focused its attention on Warsaw, which remained, despite its virtual destruction, the main bastion of Germany's Vistula line. Marshal Gregory Zhukoff, second in command to Marshal Stalin, swept around the city with his First White Russian Army and forced the Nazi garrison to retreat, thus ending a five-month deadlock. The Russians entered the city on Jan. 17, and Soviet-armed Polish troops aided the Red Army in occupying the capital.

Meanwhile the main body of Zhukoff's forces moved westward across the Polish plains to capture Lodz, the key position between the southern and central sectors of the German line. This drive through the center was the crucial one which the offensives in the North and South were designed to support, and one of its chief objectives was the seizure of Berlin and of streams which allowed passage around the fortress cities. For a time it appeared that the Germans might attempt to make a stand on the Oder, but their lack of supplies and manpower prevented them from doing so. Although the Oder did somewhat hinder the movements of the Russians, it did not prevent the Red Army from standing only 32 miles from Berlin at the beginning of February, 1945.

In mid-February, a new phase in the battle for eastern Germany developed. The Russian tide, which had been directed at Berlin, then became a flood which spread out in order to protect Zhukoff's crucial front along the Oder, which was then only the narrow tip of a deep salient. In the North the Russians fanned out into East Prussia and Pomerania, and in the South they overran Silesia. By the end of March, the Russians were again ready to press their offensive toward Berlin. After bitter house-to-house fighting all along the way from the suburbs into the very heart of the city, the Red Army succeeded in raising the Hammer and Sickle over the Reichschancellery on May 2, seven days before Soviet and other Allied representatives received the unconditional surrender of Germany in Berlin.

BATTLE OF VIENNA

Meanwhile, far to the south, the offensive in the Danube valley, begun the preceding autumn, continued, and during March the battle for Vienna developed. Vienna was not only the hub of the whole upper Danube Valley, dominating the approaches to the inner Reich through Bavaria and Czechoslovakia, but during the last stages of the Second World War, the key to the "Alpine Redoubt," where the die-hard Nazis had apparently intended to make a final effort to delay complete Allied victory. At the beginning of April Marshal Feodor Tolbukhin struck into the city's southern industrial suburbs, while other Russian forces under Marshal Rodin Malinovsky pressed the attack from Bratislava in order to cut Vienna off from the North. The Austrian capital was finally taken by the Red Army on April 13.

FINAL PHASES OF THE ITALIAN CAMPAIGN

During the late winter, ground activities on the Italian front were limited to small advances in the mountains southwest of Bologna. In the air, however, Italian-based planes maintained pressure on communications and industrial targets beyond the Alps, reaching as far north as Berlin. General Mark Clark's Fifteenth Army Group, composed of a variety of United Nations elements, launched its spring drive on April 9, succeeding in taking Bologna after a week of heavy fighting and in crossing the Po at a number of points.

The final week of the war in Italy brought wide advances throughout northern Italy, liberating Padua, Venice, and Milan, and destroying German resistance everywhere. On May 2, the slow and bitter Italian campaign was finally concluded when the commander of the German armies in northern Italy capitulated.

ALLIED PLANS FOR OCCUPATION OF GERMANY ANNOUNCED AT YALTA

Prior to the unconditional surrender of Germany, the Allies had drawn up a list of the fundamental objectives they hoped to achieve in the Reich during the period of military occupation. At the Crimea Conference of the Big Three in February 1945, the general Allied goal, as defined in the official communiqué, was "to destroy German militarism and Nazism (thus insuring that) Germany will never again be able to disturb the peace of the world." As far as German territories were concerned, the communiqué hinted that the Reich would be considerably reduced, since the Conference recognized the Curzon Line as the new Polish-Russian frontier and recognized that Poland should be compensated for its territorial losses by receiving "substantial accessions of territory in the North and West." These punitive measures were somewhat offset, however, by the statement: "It is not our purpose to destroy the people of Germany, but only when Nazism and

Militarism have been extirpated will there be hope for a decent life for Germans, and a place for them in the comity of nations."

In order to carry out the Yalta plans for the period of military occupation, the Allies proposed the partition of Germany into four zones, a plan which had apparently been agreed upon at Teheran in December 1943, with the forces of the United States, Russia, Britain, and France each occupying a separate zone. Then, since it was clearly impossible for the Allies to rule Germany without some kind of central control machinery, the Big Three proposed the establishment of an Allied Control Council, consisting of the Supreme Commanders of the four occupying powers, with headquarters in Berlin.

With specific Allied plans for the period of military occupation still incomplete at the moment of Germany's surrender and final arrangements for setting up the proposed Allied Control Council still in doubt, each Allied army in Germany was more or less on its own in coping with the confusion that accompanied the end of hostilities. Under these conditions of decentralized control, the different political and social views of the various Allies naturally tended to express themselves in somewhat divergent policies of military government.

JOINT CHIEFS OF STAFF DIRECTIVE TO EISENHOWER IN AMERICAN ZONE

In the American zone, the policies of the military government authorities were outlined in a Joint Chiefs of Staff directive issued to General Eisenhower in April 1945. Since many of the policy statements contained in the directive were adopted in substance by the other members of the Big Three at the Potsdam Conference in July, this JCS Document was of significance throughout Germany.

In one of the leading statements of the directive, released to the public on Oct. 17, it was stated that "Germany will not be occupied for the purpose of liberation but as a defeated enemy nation. Your aim is not oppression but to occupy Germany for the purpose of realizing certain important Allied objectives. The principal Allied objective is to prevent Germany from ever again becoming a threat to the peace of the world. Essential steps in the accomplishment of this objective are the elimination of Nazism and militarism in all their forms, the immediate apprehension of war criminals for punishment, the industrial disarmament and demilitarization of Germany, with continuing control over Germany's capacity to make war, and the preparation for an eventual reconstruction of German political life on a democratic basis. Other Allied objectives are to enforce the program of reparations and restitution, to provide relief for the benefit of countries devastated by Nazi aggression, and to ensure that prisoners of war and displaced persons of the United Nations are cared for and repatriated."

ALLIED CONTROL COUNCIL IN BERLIN

In an attempt to synchronize the divergent policies that were developing under the zonal system of occupation, the Big Three organized the Allied Control Council in Berlin on June 5, and authorized it to exercise supreme authority over Germany "in matters affecting Germany as a whole." Russia, Britain, and the United States planned in this way to give Germany a central political and economic military administration despite its partition into zones during the period of occupation. A single member of the Council, however, could prevent the administration of Germany as a unit, since decisions by the members had to be reached by unanimous vote.

The French, who were not invited to the Potsdam Conference but were nevertheless members of the Allied Control Council for Germany, considered plans for the unified administration of Germany unacceptable as long as the Rhineland and Ruhr, which France viewed as potential sources of military strength, remained attached to Germany. Accordingly, the French representative on the Allied Control Council consistently vetoed all proposals before the Council for Joint Allied Action on the Political and Economic Problems of Germany as a whole. By the end of 1945, therefore, the promise of unified Allied control of Germany by the Allied Control Council in Berlin had not been realized.

POTSDAM TERRITORIAL TERMS FOR GERMANY

The territorial terms outlined for Germany by the Big Three at the Potsdam Conference reduced the Reich to approximately 80 per cent of its pre-Munich area and gave Russia a common boundary with Germany, while the western Polish frontier was advanced to within 50 miles of Berlin. Although the conference specifically stated that the territorial changes it proposed awaited "final determination of territorial questions at the peace settlement," the mass deportations of Germans from the territories annexed by Russia and Poland, both before and after the Potsdam Conference, indicated that the map of eastern Germany was, in effect, redrawn at Potsdam.

Recognizing the problems created by the deportations of millions of Germans from eastern European areas to the truncated Reich, the Big Three appealed at Potsdam to the Polish, Czechoslovak, and Hungarian governments to suspend further expulsions until an "orderly and humane" program could be worked out. The German Refugee Administration in Berlin proposed a program, which went into effect Oct. 15, whereby 4,500,000 more Germans were to be evicted from Poland, Czechoslovakia, and Hungary during the winter of 1945-46. Whether this vast flood of newly evicted persons could be handled in an "orderly and humane" fashion at the appointed refugee centers in Germany was exceedingly doubtful.

ECONOMIC TERMS FOR GERMANY

The intended result of the Potsdam economic program was the "industrial disarmament" of Germany, as distinguished from the "deindustrialization" of the country. The major purpose of the Potsdam economic arrangements was to transform Germany from a nation whose economy was dominated by heavy industries into a country producing primarily food and consumers' goods and exporting only enough of these products and certain raw materials to import essential supplies.

The Potsdam plans provided that Germany's "war potential" should be eliminated, and the production of arms, ammunition, aircraft, and seagoing ships strictly prohibited. Instead, however, of calling for the destruction of all German industries which might be directly useful to a war economy, the Allies agreed to control the production of metals, chemicals, machinery, and other such items, and to restrict their output to Germany's "approved post-war peacetime needs." These needs were not to exceed the "average of the standards of living of European countries," excluding the United Kingdom and Soviet Union.

According to the terms of the reparations settlement, Russia secured a blank check for reparations in its own zone, where the Red Army had already dismantled large quantities of industrial plant and equipment, and the right to 25 per cent of whatever industrial capital the United States, Britain, and other countries entitled to reparations, removed from the western zones. Fifteen per cent of these reparations were to be conditional on deliveries to the British and American zones of food, timber, coal, potash and other resources from the Russian area, and 10 per cent were to be delivered without payment of any kind in return.

The amount of reparations to be collected was not definitely set, but February 1946 was set as the deadline for completion of the reparations bill, which was to be computed by the Allied Control Council under policies formulated by the Allied Commission on Reparations. Meanwhile the commanders in the western zones were to make advance deliveries of reparations to Russia from their areas. February 1948 was named as the terminal date for the collection of reparations in all four zones.

POLITICAL TERMS

According to the Potsdam agreement, one major political purpose of the Allied occupation was "to destroy the National Socialist Party and its affiliated and supervised organization," and to remove from public and semi-public office "all members of the Nazi party who have been more than nominal participants in its activities." To this end the Allies carried out a program of "denazification" in their respective zones, though not on an entirely uniform basis, for considerations of efficiency were in some cases permitted to outweigh ideological objections.

In another notable effort to impress on the Germans the necessity of seeking a new type of leadership in the future, the Allies brought Germany's former leaders to trial in Nuremberg on Nov. 20. These trials required months of preparation by the War Crimes Commission because of the lack of precedents and the differences among the judicial procedures of the various Allies.

At the Nuremberg trials the chief Nazis were charged with offenses falling into three categories: crimes against peace (including the planning and launching of aggressive war); war crimes (killing of hostages, devastation, and slave labor); crimes against humanity (racial, religious, or political persecutions, extermination, and deportations). Since such types of action had previously been attributed only to states as collective entities, one purpose of the trials was the establishment in international law of the principle of individual responsibility for war crimes and atrocities.

The Nazi leaders included in the first Allied indictment were: Hermann Goering, Rudolf Hess, Joachim von Ribbentrop, Robert Ley, Wilhelm Keitel, Ernst Kaltenbrunner, Alfred Rosenberg, Hans Frank, Wilhelm Frick, Julius Streicher, Walter Funk, Hjalmar Schacht, Gustav Krupp von Bohlen und Halbach, Karl Doenitz, Erich Raeder, Baldur von Schirach, Fritz Sauckel, Alfred Jodl, Martin Bormann, Franz von Papen, Arthur Seyss-Inquart, Albert Speer, Constantin von Neurath, and Hans Fritzche.

A second major political aim of the Allies in Germany, according to the Potsdam terms, was the re-education of the Germans along democratic lines. At Potsdam the Big Three agreed to allow and encourage "all democratic political parties," giving them rights of assembly and public discussion, and comparable rights were given to reviving trade unions throughout Germany. In the western zones, however, the occupying authorities did not actively encourage the growth and development of the political parties and trade unions. In the Russian Zone, on the other hand, the military authorities gave much more definite support to the appearance of German national parties, and directed them in such a way that four fairly well organized political parties emerged and formed an "anti-Fascist bloc." This bloc, consisting of Communists, Social Democrats, Christian Democrats, and Liberal Democrats, cooperates with the occupying authorities and forms the political basis for the various German administrations named by Red Army authorities. The Russians have also taken measures to change the basic economic and social structure of German life by breaking up the Junker estates and by depriving industrialists of their properties.

OCCUPATION OF AUSTRIA

The Allied military government of Austria, like that of Germany, is on a zonal basis, with each of the four powers occupying one area of the country and portions of Vienna, and matters pertaining to Austria as a whole are considered by all four military commanders sitting in the capital, but the methods and objectives of military government in Austria are substantially different from those in Germany. Although the program of denazification and demilitarization of

Germany is being extended to Austria, the Allies have announced their intention to promote conditions among the Austrians that will lead to the speedy establishment of a free and independent nation.

On the eve of Germany's military collapse in Austria, Moscow announced, on April 29, the establishment of a new government in Vienna. The provisional cabinet thus established under Russian auspices was a left-of-center coalition, headed by Dr. Karl Renner, a Social Democrat who was the first Chancellor of the Austrian Republic after the First World War. In view of the manner in which the Renner régime was established, rather than because of its composition, the Western Allies declined to recognize it until Oct. 20, when they did so on the condition that free elections would be held soon.

Elections for the Austrian national and provincial parliaments were held Nov. 25, and the Volksparti won a majority in the National Assembly. (Volksparti, 84 of the 165 seats; Social Democrats, 76 seats; Communists, five seats.) The small number of seats secured by the Communists indicated a protest by a large part of the urban population, as well as a large majority of the peasants, against the occupation of part of Austria by the Red Army, and the victory of the Volksparti revealed the amalgamation of a large number of political groups that had little in common except their opposition to the Marxist parties.

The new government of the Second Austrian Republic was established on Dec. 19, when the National Assembly was convoked, and the following day Dr. Renner was elected President for a six-year term by the unanimous vote of Parliament, and Leopold Figl, chairman of the Volksparti, was sworn in as Premier. The creation of this new Austrian Government was made possible, however, only through the achievement of general agreement among the occupying authorities. When the original list of cabinet members proposed by Figl was found to include three names which met with Russian objections, although the men in question had held posts in the Soviet-approved Renner régime, Britain, the United States, and France took the view that the important thing was to form a new government as soon as possible, and urged Figl to remove these names in order to secure Russian approval of his new cabinet.

ITALY

The first concrete action toward the restoration of sovereign independence to liberated Italy was taken by the Allies on Feb. 24, 1945, when the Allied Commission announced a series of changes in the relations of the Commission, which had hitherto enjoyed virtually complete jurisdiction over Italian affairs, and the Italian Government, which has exercised only shadowy powers. The Commission ceased to exercise "control" except in those military zones along the battlefront, where the AMG continued to function.

With the end of the period of close Allied tutelage over Italy, the Italian Government regained the freedom to conduct its foreign policy with Allied and neutral states, to issue laws and decrees without securing consent of the Commission, and to make all appointments of personnel in the administration on its own responsibility. At the same time, however, the Government's freedom of action remained contingent on the degree to which that action conformed with military necessities, and Italy remained a cobelligerent despite its efforts to gain full membership in the United Nations.

After the liberation of the north of Italy, the government of Premier Bonomi resigned, according to its pledge in this connection, and a new government was named on June 17. Ferrucio Parri, of the Action Party and a prominent Partisan leader in northern Italy, became Premier of a reconstructed government. The Parri government, like its predecessor, was beset by serious problems arising from the serious economic hardships in

Italy, and on Dec. 4 a Christian Democrat, Dr. Alcide de Gasperi, who had formerly been Foreign Minister, was named Premier. This change in government meant no real change in the political or economic program of the authorities in Rome, but merely indicated the existence of widespread discontent with any government in office and popular indifference as to what government might supercede it.

As long as the Allies made no definite peace settlement with Italy, Italy's future remained uncertain. As long as territorial future relationship to the United Nations remained unsettled, the government was unable to resume trade relations with other nations, to decide what to do with the bankrupt industries of the north, to take necessary steps to maintain international order, or to begin any of the other major jobs of reconstruction.

When the September meeting of the Foreign Ministers in London ended in stalemate and it became clear that a formal peace settlement with Italy would again be postponed, the Allies decided to publish the long-suppressed Italian armistice terms, signed Sept. 29, 1943. Contrary to earlier rumors, the terms did not deal with such problems as the disposition of Italy's colonial possessions, the final amount of reparations Italy should be expected to pay, or the question of the retention of the monarchy. Despite the fact that the actual terms were less severe than many Italians had feared and had been modified in important respects since they were originally made, they were among the sternest of any applied by the Allies to Germany's satellites.

THE ITALIAN COLONIES

When the future of the pre-Fascist Italian colonies in north Africa was discussed at the London Council of Foreign Ministers, it became clear that the Allies had widely different attitudes toward the question of their disposal. Russia, making a bid for an important position in the Mediterranean, asked for a Soviet trusteeship in the Italian colonies. Britain, primarily interested in preserving its lifeline to the Far East, wanted a settlement that would safeguard its traditional position. The United States, with less tangible interests at stake, was torn between the views that the colonies should be returned to Italy, as Italian representatives argued should be done, and the concept of international trusteeship.

The Arab League, in accordance with its campaign to secure the independence of predominantly Arabic lands, demanded that Tripolitania and Cyrenaica become independent. Meanwhile, the Ethiopian Government put forth a claim to Eritrea and Italian Somaliland. Anticipating rejection of its demand for independence, the Arab League proclaimed trusteeship an acceptable second choice—a trusteeship under the Arab League for Tripolitania and under either the Arab League or Egypt for Cyrenaica.

Despite these conflicting claims, Secretary of State Byrnes declared at the close of the London meeting of Foreign Ministers that "general agreement" had been reached in favor of trusteeship for the Italian colonies. He indicated, however, that the type of administration to be used, whether by an international authority or by a single designated state, had not yet been definitely agreed upon.

AXIS SATELLITES

At the Crimea Conference (see "The United States in Wartime and After"), the Big Three accepted joint responsibility for the policy that no temporary or provisional authorities in the former Axis satellites or liberated countries should block the eventual exercise of the peoples' right freely to choose the government and institutions of the post-war period. In the case of Hungary, all three major Allies were satisfied that the major requirements for a freely-chosen régime had been fulfilled. The new coalition, formed as a result of elections held on Nov. 4, was headed by Zoltan Tildy, leader of the Small Holders party—the conservative group that won a large majority of votes in the elections. However, economic ills, reflected in serious inflation, made the position of this elected government unstable.

In Finland, where the first post-war elections in Europe were held on March 17 and 18, 1945 a moderate trend toward the Left was revealed, although the Rightist parties led in the popular vote. Premier Juho K. Paasikive thereupon formed a Left-wing coalition government. In the general opinion of observers from the Western Allied nations, Finland was an example of a country situated on the frontier of the Soviet Union that enjoyed political independence, despite the fact that the payment of a $300,000,000 reparations bill to the U.S.S.R. placed the country firmly within the Russian economic sphere.

Rumania and Bulgaria continued to be a source of disagreement between the Western Powers and Russia. The Rumanian government of Premier Groza and the Fatherland Front régime in Bulgaria, in the view of Britain and the United States, were not representative of important democratic elements in those nations. At the London Conference, when the question of whether or not the Allies should make peace with these governments, Britain and the United States contended that the pledge made at the Crimea Conference could not be fulfilled in countries where freedom of speech and assembly were denied.

In an effort to assure Russia that the Western Powers did not object to the Bulgarian and Rumanian governments because they were friendly to the U.S.S.R., Secretary of State Byrnes declared in his official report on the London Conference that Moscow's special interests in the Balkans were recognized on the ground that "the peace of Europe depends upon the existence of friendly relations between the Soviet Union and its European neighbors."

The issue was again discussed at the December meeting of the Big Three foreign ministers in Moscow, and formulas were adopted which the United States and Britain admitted were not ideal but nevertheless constituted a compromise between their points of view and that of Russia. According to the decision of the Moscow Conference, the Rumanian Government, prior to its recognition by Washington and London, should be enlarged by the inclusion of one member each of the National Peasant party and the Liberal Party. This reorganized government was then to declare that "free and unfettered elections" would be held as soon as possible, under the supervision of an Allied commission composed of the American and British ambassadors to Moscow and Russian Foreign Vice-Commissar Vishinsky.

The situation in Bulgaria was more complicated than that in Rumania because elections were held on Nov. 18, which Russia viewed as fulfilling the requirements set up by the Crimea Conference for free elections, and the Western Powers did not consider satisfactory. In these elections there was an 88 per cent vote for the Fatherland Front, consisting of the Communist, Agrarian, and Social Democratic parties, and the Opposition declined to participate on the ground that it was not given an equal opportunity at the polls. In an attempt to harmonize Russian and Western views toward the Bulgarian situation, the Moscow Conference decided that the Soviet Union should give "friendly advice" to the Bulgarian cabinet "with regard to the desirability" of including two additional representatives of "other democratic groups." Once this was done, the United States and Britain agreed to recognize the Bulgarian Government, thus paving the way to the conclusion of peace with this former Axis satellite.

FRANCE

During the early months of 1945 the refusal of the de Gaulle provisional government to carry out fundamental social and economic changes until national elections had been held caused some surprise among former members of the resistance movement because of de Gaulle's earlier statement in behalf of far-reaching reforms. De Gaulle's unwillingness to make rapid strides toward the Left apparently reflected not only his personal preference for moderate rather than drastic change but his belief that such actions by an authority which did not yet have a legal basis might divide France and interfere with its efforts to regain military power and prestige abroad.

Meanwhile, pressure for immediate reforms mounted within the ranks of Leftist groups that had formerly been among de Gaulle's strongest supporters. During the first quarter of 1945 the Consultative Assembly and the Socialist and Communist parties all went on record in favor of the immediate nationalization of important banks, principal sources of raw materials and power for key industries, transportation and insurance companies.

In the national elections, held Oct. 21, the widespread desire of the French for something new was clearly indicated. In response to the question whether they wished to return to the Third Republic or establish a Constituent Assembly that would lay the foundations of a new régime, approximately 96 per cent of the voters approved of the latter proposal. The wish for a break with the past was further underlined by the almost total eclipse of the Radical Socialist Party, one of the strongest political groups during the Third Republic, the general disintegration of Rightist groups, and the emergence of the Communists as the single largest party.

At the same time, the French seemed to show a desire for a more stable government than they had had during the pre-war period. More than 13,000,000 voters approved the proposal, strongly backed by General de Gaulle and opposed by the Communists, that the Constituent Assembly should have certain limitations imposed on its powers, while only approximately 6,500,000 voters favored an Assembly unchecked by the executive. Nevertheless, there were two political crises before the end of the year, both of which seriously threatened the government formed by President de Gaulle after the elections. The first was precipitated by the Communists, who sought to name members of their party to three key posts in the cabinet. The second was brought about by the Socialists and Communists, who sought to reduce military credits in the general budget. On both occasions de Gaulle's threat to resign was effective in securing a compromise, for he continued to be regarded as indispensable and to enjoy prestige as "the first resister."

Prior to the elections, the three major parties—Communists, Popular Republican Movement (MRP, a new party with predominantly Catholic membership which developed during the period of resistance), and the Socialists—joined in supporting the program of the Conseil National de la Resistance, drawn up in 1944. Despite their agreement on this program for sweeping economic and social reforms, there were important differences among the parties. Bitterness over the position of the Communists in 1939-40 still complicated relations between the Communist Party and other groups. Both the Socialists and the MRP, moreover, felt that the Communists were politically irresponsible in their demands for wage increases and lack of concern about inflation. The Communists, for their part, accused the Socialists of betraying workingclass unity and claimed that members of the MRP were disguised reactionaries.

On foreign policy, as well as on domestic questions, the parties were divided, with the Socialists and MRP in favor of closer association with the West, and the Communists bitterly opposed to this measure as constituting a "western bloc" against Russia. De Gaulle's personal enthusiasm for the alliance with Russia cooled noticeably after Stalin opposed the invitation of the French leader to the Yalta Conference, and his visits to Washington and London at the end of the summer indicated his belief that closer relations with the Western Allies were needed to solve France's problems abroad. Of these problems one of the most important was that of the disposal of the Rhineland and Ruhr. De Gaulle maintained that the security of France required that the Rhineland be permanently detached from Germany and placed under an autonomous government and the Ruhr be placed under an international administration. By the end of 1945, however, none of the other major Allies had approved any plans for changing the old German western frontiers.

BELGIUM

In Belgium the question of the position of the King kept the country agitated and divided. The Catholic Party, which drew its support primarily from Flanders, one of the nation's two ethnic regions, demonstrated attachment to King Leopold III, while the Socialists, Communists, and Liberals, whose largest following was found among the Walloons, opposed him.

During its years as a government-in-exile, the Pierlot cabinet had maintained the official view that, despite the disagreement between the monarch and his chief ministers at the time of Belgium's collapse in May 1940, when the King capitulated and became a *de facto* prisoner of the Germans rather than accompany his ministers into exile—the King was a patriot and a supporter of the Allies. Leopold for his part, did not encourage or welcome reconciliation with the government-in-exile during the period of the German occupation of Belgium. Following the King's liberation by the American Army in May 1945, the government again approached him and proposed that he make certain gestures upon his return to demonstrate his enthusiasm for the Allied cause. He moved slowly in carrying out these measures and, as a result of this fact, and also because of Leopold's voluntary visit to Hitler at Berchtesgaden in November 1940, the government decided to request his abdication.

The King's reply, contained in a letter to the Regent on July 18, declared that, for the time being, he wished neither to resign nor abdicate but to wait until such a time as public opinion had clearly manifested itself on the question of his return or abdication. The end of the constitutional crisis was thus postponed until there had been an expression of public opinion in the elections of 1946, when the King apparently believed Parliament would have a majority favorable to his restoration.

THE NETHERLANDS

Holland was one of the last nations to be liberated from the Nazis, for the Allied armies that swept across France and Belgium during the autumn of 1944 cleared only three provinces. The rest of the country remained under German control, and during the winter of 1944-45 there were acute shortages of fuel, power, and food. Moreover, in their last attempts to delay Allied advances in Holland, the Nazis resorted to floodings that not only left thousands of persons homeless but intensified the food problem by making it highly unlikely that crops could be grown in these areas for several years to come.

With the final liberation of Holland by the Allies in the spring of 1945, Prof. Willem Schermerhorn, a prominent leader in the Dutch underground resistance movement throughout the occupation, became Premier, following the resignation on May 16 of Premier Gerbrandy, who had promised to leave office as soon as all Holland was liberated.

Economic problems remained uppermost throughout the year and led to popular demands that the Allies open the German frontier and permit the Dutch to take coal from Germany. Numerous appeals for aid from abroad were also made by Dutch spokesmen. Despite the country's economic difficulties, no important political crises developed, and Queen Wilhelmina remained one of the few unchallenged monarchs in Europe. She returned to Holland on May 3.

NORWAY, DENMARK, AND SWEDEN

The Scandinavian countries continued to be among the most stable in Europe. The general elections held in Norway on Oct. 8 and in Denmark on Oct. 30, the first since the war's end, showed that these countries wished to keep their time-tested systems of democratic government. Extreme Leftist groups made few gains.

Norway was the last European nation to be liberated from the Axis. Crown Prince Olaf, Commander-in-Chief of the Norwegian forces, arrived in Oslo on May 8 and proclaimed the capitulation of the German forces that had occupied the country since June 9, 1940. King Haakon VII returned to Norway on June 7. Vidkun Quisling, Premier under the Nazis, was convicted as a traitor on the charge of having aided the German invasion and was shot on Oct. 24.

The Norwegians emerged impoverished from the war years, and their leaders acknowledged that it would require many years to reach pre-war economic levels. One of the nation's greatest economic assets, its mercantile and fishing fleet, was one of the casualties of the war. Denmark, on the other hand, probably suffered least of all the countries occupied by Germany, since it was used by Hitler as a "model protectorate," at least during the early part of the occupation. Sweden, as a neutral, also suffered little from the war, and its sound financial position permitted it to extend credits and relief to the war-stricken Northern countries. At the end of 1945 this aid totaled over 3,000,000,000 Swedish crowns (approximately $600,000,000).

POLAND

The question of Poland, which had disturbed relations between Russia, on the one hand, and Britain and the United States, on the other, since April 26, 1943, when the Kremlin severed relations with the Polish government-in-exile, which the Western Powers continued to recognize, remained a source of friction among the Allies during most of 1945. Russia, determined that a government friendly to the Soviet Union should be established in Poland, wished to have the Soviet-sponsored government, which was first established in Lublin and subsequently transferred to Warsaw, and officially recognized by Moscow on Jan. 5, 1945, accepted by the other powers. The Soviet Union made it clear that it opposed the replacement of this régime lest a new government include elements opposed to the U.S.S.R. The Western Allies, on the other hand, contended that Poland, as one of the first victims of the Nazis and a liberated nation, was entitled to a more broadly representative government than that inspired by the Soviet Union.

In an effort to secure a compromise on Poland, the Big Three agreed at the Crimea Conference that Russia's claim to the Curzon Line as the eastern boundary of Poland should be recognized and provided that the provisional régime of Poland should be "more broadly based than was possible before the recent liberation of Western Poland." A commission, composed of Russian Foreign Commissar Molotov and the American and British ambassadors in Moscow, W. Averell Harriman and Sir Archibald Clark Kerr, was to consult with "members of the present provisional government and with other Polish democratic leaders from within Poland and from abroad, with a view to the reorganization of the present government" along more democratic lines.

These negotiations became deadlocked, however, on the question of which "democratic leaders" among the Poles at home and abroad should be added to the provisional government. Unable to reach an agreement, Russia requested that the Warsaw authorities be seated at the San Francisco Conference of the United Nations as the recognized government of Poland. Britain and the United States continued to refuse to accept the Moscow-supported government, and the resulting friction was increased by the trial in Moscow of 16 Poles, most of whom had had connections with the government-in-exile, who were accused of "diversionary activities" in Poland during the war. On June 16, in a new effort to end the stalemate, Stanislav Mikolajczyk, former Premier of the government-in-exile, went to Moscow, and upon his inclusion in the Warsaw régime, headed by President Bolislaw Bierut and Premier Edward Osubka-Morawski, the United States and Britain agreed to recognize this revised Polish régime on July 22.

YUGOSLAVIA

In a further attempt to secure agreement among the Big Three on Yugoslavia, another source of inter-Allied friction, the Crimea Conference proposed that the government-in-exile and the *de facto* régime of the Partisans should form a unified government. In accord with this plan, which called for implementation of the Tito-Subasitch agreement of November 1944 to merge the exiled forces under Premier Subasitch and the Partisans under Marshal Tito, a single administration was formed in Belgrade on March 9. The two Yugoslav groups also agreed that a plebiscite should be held on the question of the monarchy, and in the meanwhile three Regents, representing the Serbs, Croats and Slovenes, were appointed.

In this first unified régime that Yugoslavia has had since the Partisans began to form their underground administration in opposition to the Axis in 1941, Tito became prime minister and Subasitch was appointed foreign minister, thus emphasizing the predominant role of the Partisans in the new government. These arrangements were upset, however, by two subsequent events: the resignation of Dr. Subasitch, on Oct. 8, as a result of a dispute with Marshal Tito over the alleged undemocratic laws governing the elections held Nov. 11, and the proclamation of Yugoslavia as a republic by the Constituent Assembly on Nov. 29. In response to this latter action, King Peter immediately issued a statement from London charging Tito with having taken the constitutional decision out of the hands of the people. Tito replied that the support he had received in the elections made a plebiscite on the monarchy unnecessary, and there appeared little doubt that King Peter's reign had, in fact, ended. The United States and Britain recognized the new Federative Peoples Republic of Yugoslavia on December 22, although the Department of State declared that "it cannot be said that the election conducted on November 11 provided opportunity for a free choice of the people's representatives."

GREECE

The civil war in Greece that began early in December 1944 between the EAM, the Anti-Royalist and Leftist resistance movement, and the British supported government forces, continued until the middle of January, 1945, and negotiations for a peace were concluded on Feb. 12. According to the terms of the peace, known as the Varkisa Agreement, the Greek authorities promised the Leftists and Anti-Royalists preservation of democratic liberties, cessation of martial law, release of hostages, and an amnesty for the EAM. In addition, the terms called for the raising of a national army, a purge of collaborators and Metaxists from the administration, and the holding of elections and a plebiscite on the future of the monarchy.

On April 7, the Plastiras government, which had been in power during the civil war, gave way to a government, headed by Vice Admiral Voulgaris. The basic reason for this change was the conviction on the part of the royalists that Plastiras, who had been known as a republican, might be an obstacle to the return of King George II. Although the Voulgaris government differed from its predecessor on the constitutional issue and favored royalist officers in the Greek army, it faced the same basic economic and political problems and met with little success in coping with them. The resulting widespread unrest led to numerous strikes and to the sweeping success of EAM-Communist candidates in trade union elections in Athens and Piraeus. In the political field, relations between EAM elements and the government remained troubled, and EAM leaders charged the government with breaking its pledges made under the Varkisa Agreement.

With the advent of the Labor Government in Britain, Prime Minister Attlee telegraphed Regent Archbishop Damaskinos that the British Government was concerned over reports of "right-wing excesses in contravention of the Varkisa agreement." The earlier British policy of opposition to the EAM, however, was by no means entirely reversed. Foreign Minister Bevin expressed his opposition to any change in the Voulgaris government before elections, which promised to be favorable to the royalists if they were held soon. The British Government, whether Conservative or Labor, clearly wished to see friendly governments along its traditional life-line to the Middle and Far East, just as Russia insisted upon pro-Soviet régimes along its borders.

Despite Britain's opposition, members of the Greek Liberal Party criticized the Voulgaris government's election plans so strongly that the cabinet was obliged to resign on Oct. 9. In an effort to lessen the resulting tension between the royalists and their opponents, the Regent took over the premiership until Nov. 2, when Prof. Kanellopoulos formed a new government. By Nov. 20, this régime had also fallen and the Liberal leader, Themistocles Sophoulis, formed a new government supported by centrist elements and those slightly left-of-center (but not including representatives of the EAM), on the understanding that the plebiscite on the King's return should be postponed until March 31, 1946, by which time he apparently believed the royalists would have lost some of the strength they had gained in the civil war.

SPAIN

After V-E Day, General Francisco Franco made repeated efforts to present the world with the picture of a reformed Spain in the hope of improving his relations with the Allies. Highlights of Franco's attempts along this line were the termination of diplomatic relations with Japan on April 12 and some moves toward the easing of political restrictions within Spain. On July 13, a new "bill of rights" was approved and municipal and provincial elections were promised, as was the restoration of some civil liberties, including freedom of the press. Occasional changes were also made in the cabinet in an effort to satisfy various political factions that the régime permitted to exist, and on July 17 Franco also appealed to pre-Republican traditionalists by stating his intention of eventually restoring the monarchy.

Opposition to Franco continued to be divided, both within Spain and among Spaniards in exile, on all questions except a common desire to oust El Caudillo. The government-in-exile in Mexico City, of which José Giral was named Premier on Aug. 22, was at odds not only with the Spanish Communists but also with Juan Negrin, the last Prime Minister of republican Spain. On Dec. 28, Dolores Ibarruri, secretary-general of the Spanish Communist Party, wrote to all the anti-Franco exiles proposing a meeting in Paris to work out an agreement for overthrowing Franco.

The opposition of the Allies toward Spain continued to be modified by the fear of a new civil war in the event of the overthrow of Franco. Although the Big Three declared at the Potsdam Conference that Spain would be barred from the United Nations Organization as long as it remained under Franco's rule, and both President Truman and Foreign Minister Bevin voiced their governments' disapproval of Franco, they hesitated to take more positive action. When France invited Britain and the United States early in December to disclose their attitude toward severing diplomatic relations with Franco, it appeared unlikely that the Allies would easily overcome their fear of chaos in Spain or readily agree on the kind of successor régime they would be willing to support.

THE VATICAN

The long-anticipated increase in the internationalization of the Sacred College of Cardinals became an actuality on Dec. 23, when Pope Pius XII named 32 prelates from 19 countries to become Cardinals at a secret consistory Feb. 18, 1946. For the first time within the modern history of the Church the Sacred College was thus brought to its full membership of 70, and a number of nations not hitherto represented in the College secured members. North and South America, which had previously been represented by three cardinals, were given a total of 14, and China, Australia, Cuba, and Chile, who had never before had members in the Sacred College, were given one Cardinal each. The four new prelates from the United States who were named to join Dennis J. Cardinal Dougherty of Philadelphia, the only living American member of the College, were Archbishops Francis J. Spellman of New York, Edward Mooney of Detroit, Samuel A. Stritch of Chicago, and John J. Glennon of St. Louis.

The significance of these appointments was discussed by Pope Pius in his annual Christmas allocution to the Cardinals. Emphasizing that the Catholic Church is supra-national by its very nature and that "at a time of stress such as ours still is," the Church "must be now more than ever supra-national," he declared that he had been "anxious that the greatest possible number of races and peoples should be represented, so that this creation may portray in a living manner the universality of the church . . . Rome will thus be seen in its true light as the Eternal City . . . the city which is the See of the Vicar of Christ, on which the gaze of the whole Catholic world is fixed."

THE WAR IN THE ORIENT AND THE PACIFIC

By Gilbert Cant
Contributing Editor, *Time Magazine*

APPROACHING DEFEAT FOR JAPAN

By the end of 1944, the forces of the United Nations converging upon Japan had cut through the enemy's vast, outlying defense system at a number of points, and were attacking positions which, although still technically "outposts," were properly a part of the inner defenses.

From the Aleutians there was a modest but continuous bombing and reconnaissance campaign against the Kuril Islands; advancing from the southeast, American forces under Admiral Nimitz had consolidated their hold upon all the islands which they needed in Micronesia (bypassing the rest), and from the Marianas there had begun the strategic bombing of Japan itself by B-29 Superfortresses; in the South, forces under General Douglas MacArthur had won footholds in the Philippine Islands, at Leyte and Mindoro; in southeast Asia, the Allies had the initiative, with a predominantly British offensive being pressed in Burma.

Only in China had the enemy enjoyed any recent success, and even there Chinese National Army divisions were being retrained and reequipped by American units, so that the outlook for the future, with the prospect of a major counter-offensive, was far more favorable than at any time since Pearl Harbor.

It was still true that the United Nations held no position closer to Japan than Saipan—1,350 miles from Tokyo—and that the next island stepping stones on the route of the Allied advance would be 700 or more miles away from the main island of Honshu. By pre-1945 standards, therefore, it would have been possible for the

Japanese to feel that they were still well protected by distance. However, military distances had been foreshortened by technology, and this process was being accelerated, notably by increases in the effective range of aircraft. The Japanese capital was already under attack from Saipan; if Admiral Nimitz's forces should advance one more step, to the Volcano or Bonin Islands, they would bring Tokyo and its neighboring beaches within fighter plane range, the prerequisite to successful invasion.

Moreover, although most of the Philippines had not yet been invaded for reconquest, these islands, and the still more valuable East Indies beyond them, were already lost to Japan as a source of supplies. During the first three years of the Pacific war, United States and Allied submarines had borne the main burden of the blockade of Japan; now, with air bases under construction at Mindoro, on the shore of the south China Sea, the blockade could be made virtually leak-proof as far north as Formosa. The Japanese had already lost millions of tons of irreplaceable shipping on the more remote sea routes; now, they could expect to feel the pinch of blockade on their inner lines of communication also.

THE STRATEGIC POSITION

Thus, the plight of the Japanese was actually worse from a strategic viewpoint than a mere casual survey of the geographical positions occupied by the opposing forces would indicate. On the other hand, there was one important respect in which geography put the United Nations forces at a disadvantage, even after the techniques of waging amphibious warfare across great oceanic distances had been perfected. This was in the absence of a large land area, preferably within fighter plane range of Japan, where large Allied armies could be staged and combat-loaded in preparation for an assault upon the beaches of Kyushu and Honshu. To put it another way, there was no position in the Pacific which could correspond to the island of Great Britain in the operations directed by General Eisenhower against German-held Europe. The nearest equivalent was Luzon, 20 times as far away from Japan as was southwest England from the beaches of Normandy.

Although there was bitter fighting (of the kind too often dismissed lightly as "mopping up") at a number of bypassed positions in the southwest Pacific, the only offensive through the islands which was being decided at the opening of 1945 was on Mindoro in the Philippines. Indeed, this had already been decided for all practical purposes, scarcely more than two weeks after the invasion, for infantry operations had settled down to a pursuit of Japanese stragglers, and airfields near San José, facing the south China Sea, were already being used by fighter planes.

PRELIMINARY OPERATIONS IN THE LIBERATION OF THE PHILIPPINES

These airfields were the key to the entire campaign for the liberation of the Philippines and the securing of Luzon as a springboard for expected use against Japan. The airfields on Leyte (invaded two and a half months earlier) had proved inadequate to extend Allied air control over the western and northern Philippines, because they were on the rainy side of the islands. Mindoro was not only drier, it was much nearer to possible invasion points on the coast of Luzon, and therefore infinitely more valuable as a fighter base.

The Japanese sent only a few infantry reinforcements to Mindoro, in contrast with the great numbers which had been funneled into Leyte, and made only a single, abortive foray with heavy surface ships in an attempt to destroy the beachhead. Their principal defense consisted of suicide planes of the *Kamikaze* Corps, with which they caused a large number of casualties among American supply ships and supporting craft.

The bold move to seize Mindoro having quickly succeeded, it was possible to mount the invasion of Luzon without delay. General Yamashita's dispositions for the defense of Luzon, as he later testified, had been upset during the campaign for Leyte; in January, he still had too many troops in the southeastern peninsula (Legaspi) and in the southwestern peninsula (Batangas, opposite Mindoro). Within the broad directive issued by General MacArthur, it was incumbent upon General Walter Krueger, commanding the American Sixth Army, to decide just where the landing should be made on Luzon, and he picked Lingayen Gulf, as far north of Manila as Mindoro was south of the capital. Although the added distance increased the hazards in some respects, the decision was justified because the Japanese little expected the first landing to be made there, and because the Central Plain stretching from Lingayen to Manila offered the best approach to the capital.

To isolate the battlefield, the Third Fleet under Admiral William F. Halsey, with its carriers organized in Task Force 38 under Vice Admiral John S. McCain, carried out extensive sweeps beginning on Jan. 3, 1945. First, Formosa was attacked; next, airfields on Luzon itself were the target; Formosa again, and then the fleet sallied into the south China Sea to neutralize Japanese bases in French Indo-China and to guard against interference by enemy fleet units with the American operations at Lingayen Gulf.

These had begun on Jan. 6, when a squadron of old battleships opened the preliminary bombardment of the prepared Japanese defenses. These vessels, like the amphibious fleet which followed them under Vice Admiral T. C. Kinkaid, could not be fully protected by land-based aircraft, so highly vulnerable escort carriers were sent in with them to furnish air support. Even so, many Kamikaze planes got through; the small carrier *Ommaney Bay* was sunk; no less than three battleships (*New Mexico, California,* and *Mississippi*) were hit, and many other ships were sunk or damaged. The enemy was less successful with other unorthodox defenses, such as suicide boats and one-man torpedo rigs.

BATTLE OF THE PHILIPPINES

On Jan. 9, the 6th and 43rd Infantry Divisions of Major Gen. I. P. Swift's I Corps were landed on the northeast shores of Lingayen under the fire of Japanese batteries which had survived the withering bombardment. The 37th and 40th Infantry Divisions of Major Gen. O. W. Griswold's XIV Corps were landed to the south, under difficult beach conditions. The Japanese elected to defend the beaches only with artillery and mortars sited in the hills to the northeast; consequently, the I Corps became engaged in a close and bitter struggle for small areas of difficult terrain, while the XIV Corps spread rapidly south, toward Manila.

Several natural defense lines along the route to Manila, where the enemy might have been expected to offer determined resistance, were swiftly overrun against nominal opposition. Even the great air base system of Clark Field was allowed to fall before the Japanese began to fight savagely and futilely in the near-by hills. To guard against a Japanese withdrawal into Bataan, the 24th and 38th Infantry Divisions of the XI Corps were landed at San Narciso, north of Subic Bay, on Jan. 29, and began to cut across the base of the peninsula. A triple envelopment of Manila became possible when part of the 11th Airborne Division was landed (from boats) at Nasugbu, southwest of the capital, and the 511th Parachute Infantry Regiment dropped from the air on Tagaytay Ridge, closer to the city.

THE FALL OF MANILA

Meanwhile, the 37th Division had fought a sharp action to cross the Pampanga River at Calumpit, and the 1st Cavalry Division (dismounted) had been rushed south from Lingayen by truck, to outflank Manila from the northeast. The infantrymen had to fight their way through the northern suburbs; the cavalrymen effected their flanking movement and drove into the city on Feb. 4, to relieve the American and other Allied civilians interned at Santo Tomas University.

On the northern bank of the Pasig River, which bisects the city, the Japanese began to fight with their characteristic tenacity, the absence of which during the earlier stages of the Luzon operation had caused great surprise. They set demolition and incendiary charges which destroyed much of the business district, then blew up the bridges over the Pasig. When the Americans forced a crossing of the river under fire, the Japanese began to fight for the southern half of the city, block by block, building by building and, in some cases, room by room. The old Spanish walled city, Intramuros, proved to be a natural fortress even against modern artillery; the Japanese made its capture more difficult and costly by holding Filipino civilians as hostages and using them as human shields. During this period, there were numerous cases of large-scale butchery and rape which became major issues later in the war-crimes trials of Japanese commanders.

It was not until the end of February that Manila was cleared of the enemy; by then, the entire southern half of the city and a substantial part of the northern half had been utterly destroyed. The waterfront was a shambles, inaccessible to shipping, and the bay was cluttered with wrecks. However, a combined paratroop and amphibious operation beginning on Feb. 16 had resulted in the speedy recapture of Corregidor Island, in the mouth of the bay; this made it possible for minesweepers and demolition teams to commence clearing the bay. By April, scores of large vessels were using the bay as an anchorage, unloading by lighter, and during that month some of the docks were restored to permit faster and more efficient unloading by crane. Thus, with Manila as a port of entry, the building up of Luzon as a base for northward operations was begun, even while the campaign to liberate the rest of the island was still in progress.

RECONQUEST OF THE PHILIPPINES

There were several points on Luzon where the Japanese continued to offer fanatical resistance, long after the island had been lost to them for all strategic purposes. The most notable of these were around the Ipo and Antipolo dams, on which the city depended for its water supply, in the mountains east of Manila, and the Balete Pass and Villa Verde Trail, leading into the Cagayan Valley far to the north. The valley was cleared of Japanese only after the enemy had been trapped by a force moving south from Aparri, and in these operations guerrillas played a notable part.

By late July, General MacArthur was able to announce that the Luzon campaign had ended except for "minor mopping-up." What this could mean was apparent from experience on Leyte: that island had been declared secure on Dec. 26, 1944, yet in the first six months of 1945, no less than 26,000 Japanese were reported killed in mopping up.

Meanwhile, the campaign for liberation of the central and southern Philippines had progressed rapidly. In March, there were landings on Palawan and on the southwestern peninsula of the great island of Mindanao, at Zamboanga. The seizure of airfields at these points extended the blockade over the south China Sea, and made the cutting-off of bypassed islands much more effective, and also prepared for an extension of the offensive southwestward, through the Sulu Archipelago to Borneo.

Mindanao, with its sprawling peninsulas, was treated by the American command as though it were a group of islands. No attempt was made to advance overland, through difficult mountains and jungle, from Zamboanga to the central part of the island; instead, a second landing was made in mid-April in the Cotabato-Malabang area on Illana Bay. From here, good roads led eastward through easier terrain to Davao, the principal city on the island, where the Japanese had been commercially entrenched in peacetime. A subsequent landing southeast of the city caught the Japanese garrison in a hopeless position, forcing the enemy to flee into the jungle to the north, where they were in process of being destroyed piecemeal by American and guerrilla troops.

During this period, also, landings too numerous to recite were made on the islands in the Visayas group, in the central Philippines, and the whole archipelago had been effectively liberated when hostilities ceased.

NETHERLANDS EAST INDIES

The expulsion of the Japanese from the Netherlands East Indies was begun on May 1, when Allied forces attacked Tarakan, a small island rich in oil off the east coast of Borneo. The assault troops were Australian; the amphibious group was American; the supporting warships and air forces were both American and Australian. Several other Borneo operations had been planned, but the only two executed were those against Balikpapan, south of Tarakan on the Strait of Macassar, and the Brunei Bay area on the northwest coast of the island, where Sarawak abuts on British North Borneo. The oil from these areas had long since been denied to the Japanese by the submarine and air blockade; the main purpose in recapturing them was to make the oil available to Allied fleets and thus economize in the use of tankers. Some of the oil was so pure that it could be pumped direct into ships' bunkers, without refining. Brunei Bay was also desired by the British for development as a naval base, since their Pacific Fleet was based on Sydney, too far to the rear, and could make only limited use of Manus in the Admiralty Islands. All three positions had been effectively secured, and the work of equipping them for Allied use had started, when the need for them was removed.

In consequence of the Japanese surrender, other offensive operations which had been planned in the southwest Pacific became unnecessary. It should be noted, however, that before this occurred, the responsibility for liberation of the Netherlands Indies had passed from General MacArthur to Admiral Lord Louis Mountbatten, in the adjacent Southeast Asia Command.

THE OFFENSIVE IN BURMA

In this theater, the varied Allied forces assembled under Admiral Mountbatten enjoyed uninterrupted successes throughout the period under review, in a continuation of the offensives launched in 1944 after the defeat of the Japanese attempt to invade India. The Burma front of 700 miles was the longest land front in Asia, and it was as nearly continuous as the north-south series of mountains and valleys permitted.

To the northeast, combat operations were under the Northern Combat Area Command of Lieut. Gen. Daniel I. Sultan, U.S.A., who had succeeded Lieut. General Joseph W. Stilwell in this duty. His troops included three Stilwell-trained Chinese divisions, the British 36th Division and the American Mars Force (successor to Merrill's Marauders) of about two brigades. Their mission was to open a way for the combat engineers, under Brig. Gen. Lewis A. Pick, to extend the Ledo Road until it joined the old Burma Road and restored the overland supply route to China. As 1945 opened, Sultan's forces had consolidated their hold on Bhamo, south of Myitkyina, and had turned northeast, toward Yunnan Province, for a junction with a Chinese army advancing to meet them. Scattered Japanese pockets, especially those in the mountains around Tengchung, resisted bitterly to delay the opening of the road as long as possible, but by Jan. 23 Admiral Mountbatten was able to announce that the junction of the armed forces had been effected, and a week later the first overland communication with China since April, 1942, was established.

On the central Burma front, the British Fourteenth Army under Lieut. Gen. Sir William Slim was engaged.

It comprised 10 to 12 divisions during this period, and with supporting troops, represented 250,000 men from the United Kingdom and 500,000 from India and Africa. In December, this force, having emerged from the mountains, had forced a crossing of the Chindwin River and was rapidly exploiting it in a drive down the broad, central valleys toward Mandalay. The Japanese strength had been broken in the previous year's campaigns, and the enemy fell back in disorder, helpless to stem the advance of a superior force which had the advantage of absolute aerial control, achieved by several Allied air forces operating under S.E.A.C.

In the first seven weeks of 1945, several important positions were captured; on Feb. 19 a bold flanking maneuver was completed by a mechanized column which struck through roadless jungle to take Meiktila, headquarters of the Japanese Fifteenth Army, 80 miles south of Mandalay. With the prompt seizure of Thazi, 14 miles east of Meiktila, a substantial Japanese force was trapped. The Japanese exerted heavy pressure on the British flanking force in an effort to break out to the south before the arrival of the main British force from the north, but with only partial success. Organized resistance at this point ended on March 5; four days later, the first tanks from the north rolled into Mandalay. The capture of the city took 11 days, largely because the Japanese remnants holed up in major buildings which the British, for political reasons, preferred not to destroy. A notable feature of the mopping-up stages of this campaign was the cooperation which the Allies received from the Burmese National Army, despite the strong nationalist aspirations and the years of Japanese influence.

By April 25, a rapid advance (some divisions traveling as much as 100 miles a week) resulted in clearing the Japanese from the oil-field area around Yenangyaung; on the last of the month, Pegu was bypassed, and there was no major obstacle between the Fourteenth Army and Rangoon.

However, the capital of Burma was retaken by different means. For more than two years, the British command had been conducting a campaign in the Arakan district of the west coast, aimed at the capture of Akyab. More than once, this undertaking had come near to disaster, and the plan to make an amphibious advance along the coast had had to be abandoned early in 1944 because of the diversion of landing craft to Europe. However, the Japanese were greatly weakened in the Arakan by the end of 1944, and on New Year's Day the British-Indian XV Corps retook Rathidaung. Small-scale amphibious operations had at last become possible, and on Jan. 5, 1945, landings were made which resulted in the reoccupation of Akyab. The enemy had virtually withdrawn. Akyab, and other positions down the coast which were occupied in succession, made it possible to effect landings on May 2 on both sides of the river south of Rangoon. The following day, the city was entered.

The Japanese campaign in Burma by this time had degenerated into an effort to maintain a semblance of organization while the defeated forces withdrew eastward into the Shan Hills or southeastward into Thailand. Well into the monsoon season the British-Indian forces, now supported by Burmese, fought a little-noticed campaign to prevent this Japanese withdrawal.

THE WAR IN CHINA

All Japanese operations in China during the early months of 1945 were of a puzzling, and sometimes inconsistent, nature unless their underlying strategic purpose was understood. The enemy was not primarily concerned with the threat posed by the Chinese armies, since these were not yet reorganized, retrained, or reequipped in sufficient number to be formidable. The Japanese were most exercised about maintaining their communications and thus their freedom of movement, and the greatest obstacle to them was the growing effectiveness of the Fourteenth Air Force. Despite the loss of its main chain of bases along the Hengyang-Kweilin line late in 1944, this air force under Major Gen. Claire L. Chennault had contrived to maintain, by air supply, a still more advanced series of bases in the Nationalist-held "island" between the Japanese-held corridor and the Japanese-held coast.

Thus it was natural that when the Japanese, in mid-January, began a drive from both ends, which they already held, of the Canton-Hankow railway, to squeeze the Chinese out of the intervening 250-mile gap, the operation quickly developed into an offensive against these advanced American air bases, such as Suichwan. This was scorched and abandoned on Jan. 24, and fell within a week. Namyung, important not only as an air base but as a source of wolfram, soon followed, and also Kanhsien. By Feb. 11, with the loss of Sincheng, the last of the advanced bases was gone. However, the Japanese derived little benefit from their apparent success: the Fourteenth was receiving longer-range aircraft, which operated as far as the south China Sea, and the Chinese kept cutting the lines of communication, including that along the Hankow-Canton railway, which the Japanese had fought so hard to secure.

By early March, the Japanese had begun a process of redeployment which was not at first understood, and Chinese armies, rapidly improving in quality, closed in, quickly recapturing Suichwan. However, before the end of the month, the enemy opened a new "defensive-offensive" to knock out the U. S. air base at Laohokow, 190 miles northwest of Hankow, to increase the security of the Peiping-Hankow railway. The base was abandoned on March 26. Early in April, moving out from the captured base of Paoking, the Japanese drove against Chihkiang, also the site of American airfields.

At this time, following the Soviet Union's denunciation of its nonaggression pact with Japan, enemy moves which had been confusing began to fall into a discernible pattern: a continuous northward movement of troops was under way—from Indo-China and southern China into Central China, and from there to Manchuria. Some divisions of the Kwantung Army which had been shipped south from Manchuria were either returned or replaced by troops of inferior quality. At the same time, Japanese forces along the coast, which had been scattered in pockets, were redistributed in the areas where it was believed they would be most effective in repelling an Allied landing which had become an apparent possibility after the invasion of Okinawa.

At the beginning of May, the Japanese withdrawal was evident, and Chinese armies which had been trained under American guidance and operated with American advisers and technical services, in conjunction with American air forces, fell upon the enemy. The Chihkiang drive was aborted and several ports, including Foochow, were entered. Toward the end of the month, the Chinese began an offensive in the south, toward Indo-China. A similar drive resulted in the capture of Nanning a week later, thus cutting into the flank of the Japanese north-south corridor.

On June 8, Chinese forces reached the Indo-China border near the coast. Farther north, there was a series of coastal drives to open the way for expected Allied landings; the Japanese were fighting only delaying actions in a general retreat toward such strongholds as Shanghai. On June 18, Nationalist armies retook Wenchow.

Throughout July, attention was concentrated on the mopping-up in the south and southeast, and the recapture of American air bases. Liuchow had been re-entered at the end of June, and was followed by Tanchuk on July 9; Kanhsien on July 14; Namyung on July 25; and the shattered shell of Kweilin itself in the last hours of the month.

The best of the American-trained and American-equipped Chinese armies still had not been committed in any major action up to the beginning of August. It was expected that they could be used to great advantage in concert with the Chinese-American Composite Wing and the greatly enlarged American air forces, for the Tenth, from India, had just been ordered to China to reinforce the Fourteenth. This involved a command change which resulted in General Chennault's asking to be relieved of duty. If he had remained, he would have been in a subordinate position.

SURRENDER OF THE JAPANESE IN CHINA

These plans were automatically thrown into the discard when the Japanese surrendered. There had been some speculation that their armies in China might defy even an imperial order to lay down their arms, but General Yasuji Okamura sent an envoy to Chihkiang to accept the detailed terms of surrender imposed by Marshal Ho Ying-chin. Some confusion in the disposal of the Japanese resulted from disunity among the Chinese (Kuomintang *vs.* the Yenan or "Communist" elements), but this is properly a matter for consideration in connection with China's internal politics.

The Japanese were already preparing to surrender when the Soviet Union entered the war on Aug. 8, and the vaunted Kwantung Army offered only sporadic, local resistance to the Red armies which overran Manchuria.

CONQUEST OF THE KURILES AND RYUKYUS

With the seizure of the southern Marianas in the summer of 1944, and the neutralization of the northern islands in this chain, Japan's defenses on the ocean side had been reduced to three chains of "stepping-stones" radiating from the home islands: the Kuriles, to the northeast; the Izu-Bonin-Volcano line, to the south, and the Ryukyus, to the southwest. Although some of these positions were 750 miles from the home islands, they constituted part of the "inner fortress" because they could be reached by tactical aircraft flying from home bases, and because their defense had been integrated with that of the four main islands.

Although some Allied commanders, notably Lieut. Gen. Simon B. Buckner, had at one time favored a descent upon Japan by way of the Aleutians and Kuriles, the high command abandoned this project when it became evident that the foul weather conditions, in which fogs and storms were the rule rather than the exception, would make amphibious operations impossible. The U. S. advanced base at Attu was used, therefore, only for reconnaissance flights and nuisance bombing raids against the Kuriles. Even these limited operations were hazardous and costly.

The Ryukyu chain contained several islands with sufficient level ground for airfields from which the strategic bombing of Japan could be conducted, but the capture of such a position had to await the achievement of aerial supremacy over the south China Sea, Luzon Strait and Formosa, which would not be possible until Luzon was secured.

Thus it was the north-south chain, stretching from Tokyo Bay to the Volcano Islands, which was selected for the first Allied penetration into the "inner fortress." None of the islands was large enough for strategic bomber bases, but some contained fighter plane bases which could be enlarged and would be invaluable for two purposes: (1), to facilitate fighter cover for the B-29 Superfortresses which were then suffering heavy operational losses, and (2), to extend Allied fighter range to the beaches of Japan when the time came for invasion. Furthermore, it was important to deny the use of the Bonins and Volcano Islands to the Japanese, as air bases from which they could attack the southern Marianas and the B-29s flying to Tokyo, and as radar outposts from which they could detect the passage of the big bombers and give advance warning to the target areas.

CAPTURE OF IWO JIMA

The individual island selected for capture was Iwo, or Sulphur Island, in the Volcano group. Only five miles long, less than three miles wide, it had two air bases in operation and a third under construction. A campaign of intermittent bombing and bombardment by surface ships had been directed against Iwo since the invasion of the Marianas, but had failed to neutralize it. On the contrary, the Japanese, under an unusually skillful and resourceful commander, Lieut. Gen. Tadamichi Kuribayashi, had spent the last months of 1944 and the first seven weeks of 1945 in strengthening their defenses. American bomber crews noted that during this period the anti-aircraft fire increased in intensity, although the island was subjected to daily raids.

While the main striking force of the U. S. Pacific Fleet, organized as the Fifth Fleet under Admiral R. A. Spruance, steamed into Japanese home waters to isolate the battlefield, a preliminary bombardment force of escort carriers and six old battleships arrived off Iwo on Feb. 16 to "soften it up" for the assault troops. Thousands of tons of bombs and shells were expended on the island's small area. By the 19th, the invasion and support forces assembled off Iwo totaled more than 800 ships, under Vice Admiral Richmond K. Turner.

There was no question that everything possible, short of the use of poison gas against the 20,000 defenders, had been done to facilitate the task of the assault troops, the 4th and 5th Marine Divisions. During the first hour after the landings, it appeared that the preliminary bombardment had accomplished its purpose, for the Japanese offered negligible resistance to the original landings. That appearance, however, was deceptive: as soon as the invaders were "astride the beach," in their most precarious position, the Japanese opened a murderous bombardment with artillery, mortars, and rocket projectiles which took a heavy toll of both men and equipment. Most of the sites from which this fire originated could not be located because they were built into the ground, and this explained why they had not been incapacitated during the pre-invasion bombardment.

The schedule for landing reinforcements was dislocated; the ship-to-shore movement of equipment was thrown into chaos, and at one time there were almost as many wounded men leaving the island as there were replacements arriving. Despite these handicaps, progress the first day was satisfactory, part of Airfield No. 1 being overrun, and the Japanese stronghold built into the cone of Mt. Suribachi, at the southwestern tip of the island, cut off from the rest of the garrison.

Thereafter, progress was much slower. Two regiments of the 3rd Marine Division, which had been held in floating reserve, had to be committed on the third day. No matter how heavy the aerial attacks, the surface ship bombardment, and the counter-battery fire of the Marines, the weight of the Japanese fire was reduced only in the same proportion as more ground was captured. Almost half the island, including much of the second airfield, was captured in seven days; in 11 days more, the advance varied from half a mile to a mile and a half. The island was declared secure after 26 days, but ten days later 200 of the enemy remnant were able to organize underground and deliver a well-planned, costly attack. The process of smoking them out of their burrows continued for weeks.

Iwo was an object lesson in just how expensive the Japanese could make a given piece of ground; they had had 20,000 men on its eight square miles, and not one of them had been quartered above ground. Subterranean works containing arsenals, living quarters, and stores extended hundreds of yards from the mouths of the caves where the guns were sited. No less than 40,000 tons of ammunition had been expended (two tons per man of the enemy), but few Japanese had been killed by it; most had to be dispatched by rifle, machine gun, flamethrower, or demolition charges dropped into their caves. The Marines' casualties, as then reported, were 4,630 killed or missing and 19,938 wounded. The gains which had been obtained at this high cost soon became apparent; great numbers of B-29s, damaged over Japan or in difficulties for other reasons, made emergency landings at Iwo which saved the lives of many crewmen; the B-29s were free from detection or interference en route to the target, and their operations improved greatly in effectiveness.

THE WAR SITUATION IN MARCH

The war situation during March may be recapitulated thus: Iwo had been secured, and would be ready to send fighter plane sweeps against Japan by about April 15; Manila Bay was being opened, so that the building-up of Luzon as a training and staging area for troops to be used in the invasion of Japan could start, even before the whole island was secure; the Twentieth Air Force had withdrawn its 20th Bomber Command from Chengtu, in western China, where its air-supply operations were uneconomic, and was redeploying the B-29s from China in the southern Marianas. The Burma campaign was going well and the Japanese were preparing to withdraw from southern China, but neither of these had much bearing on the strategic situation confronting Japan. With increased air supply and the opening of the Stilwell Road, the U. S. Fourteenth Air Force (China based) was extending its operations to the East and South China Seas, where they meshed with those of air forces based among the Pacific islands—the Twentieth and Seventh in the Marianas, and the Fifth and Thirteenth in the Philippines.

OKINAWA

The United Nations' greatest need at this time was for additional air bases from which the strategic bombing of Japan could be furthered, and for air bases from which fighter sweeps could be launched over Japanese beaches at invasion time. The Marianas and Iwo were too small to accommodate the required numbers of bombers and fighters respectively. The position which would satisfy both requirements was Okinawa, largest island in the Ryukyus, whose main airfields were 365 miles from Kyushu and 950 miles from Tokyo. The seizure of Okinawa would, moreover, complete the isolation of Japan from all its southern conquests by closing the east China Sea, and would make possible an Allied landing on the coast of China whereby some, at least, of the scattered Chinese forces could be equipped and supplied over economical sea routes. Such a landing was in fact planned, as a diversion to precede the invasion of Japan proper.

Okinawa was believed to have a garrison of 50,000 to 70,000 Japanese and was known to have been strongly fortified. Since the population was hostile, the only information about the island had to be obtained by aerial reconnaissance. The distance of Okinawa from the nearest Allied bases—the Marianas, the western Marshalls, and Ulithi in the western Carolines—was so great that the problems of maintenance and supply for both sea and land components of the invading force were vastly complicated. It was therefore decided that the small Kerama Islands, a group lying to the west of southern Okinawa, should be occupied first, to afford a safe roadstead for the great numbers of ships which would be held in the area for long periods, and to supply a base for aerial reconnaissance by seaplanes.

Even before the Keramas were invaded, however, there was elaborate preparation by all the forces which could be brought to bear. Again, the Fifth Fleet entered Japanese home waters, using its carrier planes to isolate the battlefield by attacking enemy naval craft and aircraft at their bases. Although the 20th Bomber Command in China was being dismantled, it furnished weather reports. The 21st Bomber Command operated in strength against the Tokyo area and other industrial sections of Honshu. The Fourteenth Air Force set out to neutralize Canton and Hong Kong, and carried out reconnaissance off the China coast. The Fifth Air Force, flying from Luzon, neutralized Formosa with its 55 airfields. The Seventh Air Force, in the Marianas, struck at all the enemy-held islands within range. A British naval force built around four aircraft carriers (equivalent in strength to an American task group) was assigned to neutralize the Sakishima group of islands, in the Ryukyu chain between Okinawa and Formosa.

On March 26, the Kerama Islands were invaded by elements of the 77th Infantry Division. The small Japanese garrisons were quickly wiped out or else driven into hiding where they could do little harm. An unexpected dividend accruing from this operation was the discovery of large numbers of suicide boats which had been prepared for use against the invasion fleet expected off Okinawa. The great majority were never used.

Suicide planes, however, had been prepared in far greater numbers, and were used much more effectively. In the first 48 hours of the campaign, 18 kamikaze attacked the naval force; 12 were shot down, but six succeeded in crashing into American ships, sinking a minesweeper and damaging two destroyers and a battleship.

The invaders turned their attention to the main target; both coasts of southern Okinawa were struck by carrier planes and raked by battleship gunfire, and transports bearing the 2nd Marine Division made a feint against the southern extremity of the island. In this way, it was hoped, the Japanese could be prevented from guessing where the landings would be made. The stratagem appears to have succeeded to some extent; more important, the Japanese commander, Lieut. Gen. Mitsuru Ushijima, elected not to contest the beaches, but to concentrate his men and his abundant artillery in defense of the mountainous interior of the southern part of the island.

On April 1, the day of the invasion, the only significant enemy action was by kamikaze planes which attacked the fleet almost continuously; the assault troops were ferried to the beaches and walked ashore, upright, without casualties. The Tenth Army, under General Buckner, consisted of the III Marine Amphibious Corps (Major Gen. Roy S. Geiger), on the left flank, and the XXIV (Army) Corps (Major Gen. John R. Hodge), on the right flank. The Marines' mission was to take Yontan airfield and cut across the island to Chimu Bay, then wheel north and capture the northern two-thirds of the island, which was lightly defended. The Army forces were to take Kadena airfield and wheel south, toward Naha, the capital, and Shuri, the former seat of Okinawan kings.

Both airfields were overrun within a few hours, against negligible resistance offered by a handful of Japanese stragglers. The Marines made rapid progress to the north, and reached Cape Hedo by April 13, having encountered serious opposition at only one point, on Motobu Peninsula, where more than 2,000 Japanese dead were counted.

At the end of five days, the Army forces also were about two weeks ahead of schedule, and had overrun one Japanese defense line which proved to be very lightly manned. On April 6, stubborn fighting began on the ground, and the Japanese made their greatest effort in the air. Forty ships already had been sunk or damaged in the campaign, although the Japanese had sent down only small forces of kamikaze. On this day, however, they sent more than 500 down from Kyushu, of which about 400 were shot down en route by fighter planes from Fifth Fleet carriers. Of the 116 which reached the Okinawa area, 55 were shot down by fighters from escort carriers; 61 got through to the fleet, and of these, 39 were shot down by anti-aircraft fire. The remaining 22 were successful in suicide dives against American warships. Two large ammunition ships were blown up, two destroyers and a minesweeper sunk, ten destroyers and three minesweepers damaged. At no time thereafter were the Japanese able to send such large numbers of aircraft against the fleet, but the forces employed were nevertheless considerable. During the three months when the ships were forced to remain in Okinawan waters, the United States Navy's losses in both ships and men were greater than in any other campaign, although no large units were sunk.

The southern land front, where the XXIV Corps was engaged, remained static for two weeks after April 5, the period being devoted to artillery dueling. The Japanese had a greater abundance of artillery, including new large mortars and rockets, than they had had even at Iwo, and it was used with great skill. Nearly all the enemy positions, whether for artillery, automatic weapons, or infantry, were cleverly dug into the hillsides and well concealed.

An exceptionally heavy artillery barrage and an infantry attack along the whole front on April 19 were intended to break the stalemate, but resulted only in the capture of a narrow strip of ground, after which the process had to be repeated. The campaign came to resemble that on Iwo Jima, the Japanese having to be dug, burned, or blasted out of every hole in the ground on the line of advance. On May 1, it was necessary to put the 1st Marine Division, which had completed its mission in the north, into the southern line; later the 6th Marine Division also was added, and in the closing stages of the campaign the 8th Regiment of the 2nd Marine Division was brought back from Saipan. The Army divisions which fought throughout the campaign were the 7th, 27th, 77th, and 96th.

The first break in the enemy's stubborn stand came after May 21, when American infantrymen had at last succeeded in taking commanding hills which would permit turning of the main Naha-Shuri-Yonabaru defense line. Under cover of dirty weather, the Japanese withdrew several miles to a secondary line built into the Yaeju-Dake escarpment, the full-scale assault which began on June 10. Ushijima ignored General Buckner's invitation to "honorable surrender." On June 18, General Buckner was killed while visiting a forward command post to observe the 8th Marines in action. He was temporarily succeeded by General Geiger.

On June 21, organized resistance on Okinawa was declared to have ceased; the campaign which had been expected to last 70 days had actually taken 82 days. No less than 37,658 soldiers and marines had been killed or wounded. However, the number of Japanese was shown to have been seriously underestimated, and the enemy's losses were put at 120,000. In addition to losses ashore, the United States had lost 4,907 naval personnel, and 4,824 had been wounded. Both ashore and aground, Okinawa was the costliest campaign of the Pacific Island war.

SEQUEL TO IWO AND OKINAWA

At the end of the Iwo campaign, and toward the end of that on Okinawa, the number of Japanese willing to surrender increased markedly. Most of the prisoners explained that they were willing to give up when they saw the irresistible superiority of the force which had been brought to bear against them, but in most cases they were at first prevented from doing so by superior officers. By this time, some junior officers were surrendering. It was obvious that with the end of the war in Europe (which came midway in the Okinawa campaign), the Allies would be able to deploy such great forces that Japan was doomed, but the question persisted: would the Japanese surrender before their homeland was completely destroyed, or would they, in order to take the greatest possible toll of Allied lives, fight to the death in the cave-pocked recesses of their own hills and valleys? The frightful cost which they could exact in such a campaign had been demonstrated, on a comparatively small scale, at Iwo and Okinawa.

The consensus among Japanese prisoners whom the writer interviewed at Iwo in April was that the Japanese army and nation would obey a surrender order from the Emperor, but that no such order would be issued until the Allies had landed in Japan.

Although the Allied high command hoped to induce a surrender without the necessity for invasion, it was compelled to plan on the assumption that this might not be possible. For that reason, it began to redeploy the Eighth Air Force from Europe to Okinawa, where 23 airfields were under construction, as well as a number of infantry divisions. The Sixth Army, on Luzon, was put into training for "Operation Olympic," landings on Kyushu to be made toward the end of the year. "Operation Coronet," the invasion of Honshu, was planned for March, 1946.

AERIAL CAMPAIGN AGAINST JAPAN

Meanwhile, Japan itself had begun to feel the weight of Allied air and naval attack. In January, 1945 only one wing (capable of flying off 100 to 150 planes at a time) of B-29s was in operation from the Marianas. In the four following months, four more wings were added, so that by June it was possible to send as many as 800 planes against Japan in a single day. On March 9, using a then-record force of more than 300 planes, the 21st Bomber Command abandoned its doctrine of high-altitude "precision bombing" by daylight, and resorted to night saturation bombing with incendiaries. The result was that about 15 square miles of Tokyo were burned out. Within a week, three other great cities were subjected to the same type of attack: Nagoya (twice), Osaka and Kobe. From then until the end of hostilities, although the richest target areas had already been worked over, the B-29s continued to increase the weight and effectiveness of their assaults.

The United States Fleet had begun to operate in Japanese waters in February, to cover the landing on Iwo. At this time, bad weather protected the ships from enemy aircraft. On March 18, the fleet was back again, to isolate the battlefield of Okinawa. In two days, three carriers were crippled, the *Franklin* suffering exceptionally heavy casualties. Fighter sweeps resulted in the destruction of great numbers of Japanese planes in the air or on the ground, and in considerable damage to enemy fleet units at their bases on the Inland Sea. On April 6, when the fleet was patrolling between Kyushu and Okinawa, its planes intercepted and sank the powerful modern battleship *Yamato,* which was being moved from the Inland Sea to the Yellow Sea, and was forced to avoid the Straits of Shimonoseki because they had been mined.

NAVAL OPERATIONS

Late in May, Admiral William F. Halsey took command of the fleet, relieving Admiral Spruance (the ships were virtually the same, but became known as the Third Fleet), and on July 10 he steamed up to the coast near Tokyo. The Japanese air force was in hiding, and was believed to be dispersed at bases on Hokkaido, so on July 14 the fleet approached that northerly island. Not only were large aircraft groups flown off; at noon, the gunnery ships stood close inshore and shelled the steel town of Kamaishi, on northern Honshu. The next day, Muroran on Hokkaido was bombarded. The Japanese took no counter-measures, either with aircraft or with shore guns, and they had no fleet fit for sea.

On July 17, the British task force joined the American fleet for an assault by 1,500 carrier planes on the Tokyo area, and that night the battleships bombarded a stretch of coast within 40 miles of the capital.

PEACE OVERTURES

The Japanese had already invited Russia to mediate their conflict with the western allies, but Russia had taken no action on the proposal. Instead, meeting with President Truman and Prime Minister Attlee at Potsdam, Premier Stalin had agreed to join in a final assault on Japan if a joint American-British-Chinese declaration calling upon the Japanese to surrender was rejected. This was issued on July 26, and was publicly scorned by the government of Premier Koiso. However, forces were already at work within the Japanese Government to bring about a surrender.

ATOMIC BOMBING OF HIROSHIMA AND NAGASAKI

On Aug. 6, the first atomic bomb in the history of mankind was dropped on Hiroshima. Bomb-damage experts still were unable to agree, months later, as to the military effectiveness of the new and frightful weapon, but the effect upon the Japanese Government was what might have been expected. The faction which was seeking to surrender, if only some face-saving modification of the Potsdam formula of "unconditional surrender" could be found, gained the upper hand. Two days later, a second atomic bomb (of a different type from the first) was dropped on Nagasaki, and the Soviet Union entered the war, beginning a campaign in Manchuria. (See "The Atomic Bomb.").

SURRENDER OF JAPAN

On Aug. 10, the Japanese announced that they would accept the Potsdam proposal, provided that "the prerogatives of the Emperor as sovereign ruler" were maintained. On the 14th, after a further exchange of notes, President Truman announced that the Japanese reply was construed as acceptance of the Allied demand.

General MacArthur was appointed supreme commander for the Allied powers to accept the surrender, and after a Japanese delegation had flown to Manila to receive his instructions, the first American occupation units landed without incident at Atsugi airfield on Aug. 26. On Sept. 2, additional forces having been landed from ships at key points around Yokosuka, the formal surrender was signed aboard the battleship *Missouri* in Tokyo Bay.

Although there were some irritating delays, especially in southeast Asia, and in certain areas considerable time elapsed before the commanders of isolated Japanese units received satisfactory proof of the Emperor's order to lay down their arms, it was, in the end, universally obeyed. Japanese armies everywhere, including more than 2,000,000 men in the home islands, submitted peaceably to disarmament. It was found that the bypassed garrisons, such as that at Rabaul in New Britain, had been even stronger than estimated. There was no precedent in history for the surrender of so great a military force, only small segments of which had been engaged and defeated, but after they had submitted themselves to disarming, and, in the case of overseas garrisons, to repatriation, Japanese warriors, like the rest of Japan, ceased to be a military problem and became exclusively a political problem. (See "The Military Occupation of Japan.")

THE ATOMIC BOMB

By George M. Murphy

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USE IN THE WAR

The most important single event of the war was revealed to the world by President Truman at 10:45 A.M. on Aug. 6, 1945. He said, in part: "Sixteen hours ago an American airplane dropped one bomb on Hiroshima, an important Japanese Army base. That bomb had more power than 20,000 tons of TNT. It had more than two thousand times the blast power of the largest bomb ever yet used in the history of warfare." Naming this new weapon of war an atomic bomb, he warned that if the Japanese did not accept our terms, "they may expect a rain of ruin from the air, the like of which has never been seen on this earth."

Three days later, on Aug. 9, another atomic bomb was exploded over the city of Nagasaki. The next day, the Japanese Government sued for peace, and, on Aug. 14, the war was over. It seems clear that the new weapon did not win the war, for that was accomplished by the men actually engaged in combat with the enemy, but the atomic bomb did shorten the war, thus saving the lives of thousands who would otherwise have continued the fight. What may be much more important is the effect of the successful utilization of atomic energy on the future history of civilization.

Complete details of the destruction in these two Japanese cities will probably never be known. Accounts of eye witnesses, aerial surveys, and inspection by American observers after the fall of Japan all agree as to the magnitude of the ruin. The pre-war population of Hiroshima was known to be about 340,000. Casualties were believed to be about half this number; deaths were estimated as approximately 50,000, many of these dying later from burns or other wounds receiver at the time of the original blast; a relatively small number died from the effects of radioactivity. There were said to be no buildings in the city undamaged, and four square miles, about 60 per cent of the city's area, were completely devastated.

The area of the blast damage at Nagasaki was smaller than that at Hiroshima but destruction was more complete, most buildings apparently being reduced to powder. Of this city's four square mile area, about one-third, was in total ruins. Observers reported that the destruction was much greater than in Stalingrad or Warsaw. Casualties in Nagasaki, whose population was about 250,000, were comparable in number with those at Hiroshima.

SCIENTIFIC BASIS FOR THE BOMB

The scientifically minded reader is probably aware that the War Department has issued an official report on the atomic bomb project, *Atomic Energy for Military Purposes* by H. D. Smyth (Princeton Univ. Press, 1945) and to this source reference may be made for technical details which can not be given here. The following account is based mostly on that report.

During the last 25 years, the physicist has studied a large number of nuclear disintegration reactions. As a typical example, a nuclear particle, such as the neutron, is hurled at an atom which, as a result of this bombardment, is converted into an atom of a different chemical element. An important new feature, known as fission, was observed by the German investigators, O. Hahn and F. Strassmann in 1939, and explained by O. R. Frisch and Lise Meitner. In their experiments, they showed that bombardment of the uranium atom with neutrons causes the nucleus to split into two fragments of nearly equal mass. These residues are highly radioactive, emitting neutrons and other particles in an attempt to reach a final stable state. The possibility thus exists of starting what is known as a chain reaction. A single neutron from an external source would be used to split the first uranium atom in the primary act. At least one additional neutron is to be expected from the decay of the fission products, and this neutron will cause fission of a second uranium nucleus. The process will then proceed spontaneously, after the single original neutron has been supplied, and will cease only when all of the uranium present has been transformed into fission products or when the chain is broken by loss of neutrons owing to extraneous reactions or other reasons.

It was easy to show that a considerable loss of mass occurs in the fission reaction, and according to a principle discovered by Einstein in 1905, it could be calculated that the energy released per fission is 200,000,000 electron-volts. This figure is fantastically large compared with somewhat less than one electron-volt observed in explosions of dynamite, burning of coal, and all other energy producing reactions previously known.

By June 1940, the scientific status of the fission problem was reasonably clear to the nuclear physicist. It seemed probable that a nuclear chain reaction could be made to occur and that the energy concurrently released could be used either to produce a military weapon of unbelievable potentiality or to furnish an almost inexhaustible supply of power for peaceful uses. Theoretical indications suggested that control of such reactions was possible so that the power plant would not blow up and the bomb would not explode until it was ready to fall on the enemy target. The practical difficulties did not appear insurmountable. The most difficult ones should be mentioned.

It was known that the element uranium, as it occurs in Nature, is composed of atoms of three different varieties known as isotopes. The masses of these isotopes, on the usual scale of atomic weights, are approximately 234, 235, and 238. It was also known that only neutrons traveling with relatively slow speeds, so-called thermal neutrons, produced fission and that the isotope U-235 was the atomic species directly involved in the fission act. The heavier isotope, U-238, was expected to capture the thermal neutrons and thus reduce the number of neutrons available for carrying on the chain reaction desired. (The presence of U-234 is of little consequence since it composes only about 0.006 per cent of the naturally occurring mixture of isotopes.) It thus became apparent that the success of the project depended on the separation of U-235 and U-238.

This task, while simple in principle, was actually extremely difficult, for isotopes differ from each other only in physical properties and chemically hardly at all. This means that the usual chemical separation methods are quite useless and that lesser known physical methods must be employed. While some separation of other isotopes had been previously achieved, one is forced, in the present case to work with the most difficult case in Nature, as uranium is the heaviest known element and all separation efficiencies will here be at a minimum. Finally, the relative abundance of U-235 is only 0.71 per cent, therefore any separation process must be arranged to handle large amounts of material in order to get relatively small amounts of U-235 desired.

ORGANIZATION OF THE PROJECT

Almost immediately after the discovery of fission, some nuclear physicists in this country became alarmed over the potentiality of the phenomenon as a military weapon. These fears were further increased by rumors in scientific circles and later by more definite information that the German Government was devoting considerable effort to exploration of its military uses.

The organizational history of the project is complex, many changes having occurred during the period of its existence. A complete account of it may be found in the Smyth report (*loc. cit.*). Suffice it here to say that the growing fears of the scientists led them to present the situation to President Roosevelt in the fall of 1939 and that he, being convinced of its urgency, made funds available for further research. Progress was slow but the activities were continually expanded, first under the National Defense Research Council, then under the Office of Scientific Research and Development, and finally under a new district formed in the Corps of Engineers of the U. S. Army.

This district, formally established on Aug. 13, 1942 and called the Manhattan District was, in September of that year, placed under the charge of Major Gen. (then Brigadier Gen.) Leslie R. Groves. The work of the district has continued essentially unchanged to the present date.

Simultaneously with the American project, research and development also occurred in both England and Canada. Both governments issued official reports, similar to that of Smyth.

During the period covered between 1939 and 1945, there were many false starts, unsuccessful experiments, and abandoned methods. The objective was clear: large quantities of separated U-235 or other fissionable materials were to be prepared and this material was to be placed in bombs so devised that the atomic explosion would occur. Two different separation methods were eventually operated on a large scale and a new fissionable element, plutonium was also produced. The means of achieving these results will now be described.

SEPARATION BY DIFFUSION

The diffusion method was first suggested by J. R. Dunning, following preliminary experiments made by E. T. Booth, A. V. Grosse, and himself at Columbia University in 1940. Research continued there, and, in May 1943, H. C. Urey was placed in charge, the laboratories, with Columbia University as the contracting party, by now being called, for security reasons, the SAM. Laboratories. In the meanwhile, design and construction of a large-scale diffusion plant had been entrusted to the Kellex Corporation, with P. C. Keith as executive in charge. This plant, located at Oak Ridge, Tenn., was operated by the Carbide and Carbon Chemicals Corporation, with G. T. Felbeck in charge. Responsibility for the SAM. Laboratories was also assumed by that corporation on Feb. 1, 1945, with R. H. Crist as Director of the research. Additional research and development of the diffusion process occurred at other laboratories, including Princeton University under H. S. Taylor and at the Bell Telephone Laboratories.

The diffusion method required that large quantities of a gaseous uranium compound be circulated in apparatus equipped with semi-porous membranes through which the gas could diffuse. The lighter molecules, containing U-235 enriched material, will concentrate in the diffusate and can be recirculated, if necessary, in order to achieve increased purity of product. Unfortunately, the only suitable compound was highly corrosive, and this meant that special requirements and treatments were imposed on blowers, pumps, seals, diffusion membranes, and all other materials used in the plant.

The amount of separation secured in a single unit was very small so it was necessary to connect many thousands of such units in successive stages. Another problem encountered was that of making the plant vacuum tight so that the valuable product would not leak out of the equipment and so that air would not leak into it to contaminate the product. Eventually, all of these problems were satisfactorily solved, and the diffusion plant at Oak Ridge was in operation before the summer of 1945. Its performance has been consistent, reliable, and, in general, better than had been anticipated.

ELECTROMAGNETIC SEPARATION

The first actual separation of U-235 was made in March 1940 by Nier, Booth, Dunning, and Grosse, using a mass spectrometer to prepare minute amounts of enriched material. This method was therefore pursued further with the object of obtaining greater amounts of U-235 by a method already shown to be effective. The initial experiments were done by E. O. Lawrence at the University of California and by H. D. Smyth at Princeton University. The particular device developed at the former location proved to be most suitable, and work on the method was eventually concentrated there. The separator, called the calutron, consists of an ion source from which a beam of uranium ions is drawn by an electric field, accelerated to high velocities, separated in a magnetic field and collected in a system to receive the enriched material. As in the diffusion method, many technical and engineering problems were encountered. The advantages of this method included the high separation efficiency of the unit machine and the independent operation of each unit. The latter made it possible to modify and improve the process as the large scale plant was in course of construction.

Construction of the electromagnetic plant was started at Oak Ridge, Tenn., in March 1943, by the Stone and Webster Engineering Company. The first units were put into operation in November 1943. Research and development were mostly at the University of California under the direction of E. O. Lawrence; the equipment was manufactured by Westinghouse, General Electric, and Allis-Chalmers; the plant was operated by the Tennessee Eastman Company.

PRODUCTION OF PLUTONIUM

When the more abundant isotope, U-238, is irradiated with neutrons some of them are captured to form a new isotope, U-239, not existent in nature. This isotope is unstable, decaying to form a new element, called neptunium, and this, in turn, decays to form plutonium. The latter element is also radioactive but its stability is relatively great, its life-time being greater than that of radium. It was shown to be of value comparable to U-235 for chain reaction in bomb purposes. Moreover, its chemical properties will not be identical with those of uranium hence, unlike the separation of U-235 from U-238, separation of uranium and plutonium will be possible by chemical means, a process more practicable in principle than isotopic separation.

Following some preliminary experiments at the University of California, an organization was established at the University of Chicago, in January 1942, under the direction of A. H. Compton. It was called the Metallurgical Laboratory and its purpose was that of making a further study of the whole plutonium problem.

Earlier experiments at Columbia University had been made with an arrangement called a pile, composed of a lattice structure of graphite and uranium oxide. Neutrons formed by fission in the oxide were to be reduced to thermal velocities by the graphite, this material being called the moderator. The primary purpose of the pile was that of inquiry into the question of most importance for the entire project: will enough neutrons be produced in such a system to sustain the chain reaction? If the answer to this question had been negative, the whole project was doomed to failure. The Columbia results, while not conclusive, were encouraging, and the Chicago group set out to study this problem on a larger scale. They also proposed to apply the pile to the production of plutonium, if this proved practicable.

By the fall of 1942, they had assembled about six tons of uranium metal, uranium oxide, and graphite. They believed that, when this structure reached a certain critical size, neutrons from spontaneous fission or other sources would start the reaction going. This, indeed, proved to be the case, and, on Dec. 2, 1942, the first Chicago pile was so operated at a power level of ½ watt. Ten days later, the power was increased to 200 watts.

The importance of this experiment can not be minimized, for, in addition to its value for the bomb project, here was demonstrated for the first time that nuclear energy could be used for the production of power. The difference between this power plant and the conventional type, using coal or other fuel, should be noted. The latter will require periodic addition of fuel throughout its existence; the former, once erected to the critical size, needs no further attention and will furnish power continuously for a very long time. Control of the power level is simply achieved by the position of certain control rods which are placed so that the number of neutrons available can be regulated.

It could be shown that the amounts of plutonium required for a single bomb would necessitate the operation of this small pile for many thousand years and that piles of 500,000 to 1,500,000 kilowatts capacity were needed. For comparison, we observe that the ultimate capacity of the hydroelectric plants at the Grand Coulee Dam is expected to be 2,000,000 kilowatts.

The Chicago group set out to build such a plant. Design, construction, and operation were delegated to the du Pont Company, and construction was started at a site on the Columbia River at Hanford, Wash., in June 1943. In addition to the plant itself, chemical separation processes were built for the extraction of the plutonium product. The first pile was operated in September 1944; three piles were in operation by the summer of 1945. Chemical separation and production of plutonium were better than had been anticipated.

The chemical research and other problems involved in the plant were the responsibility of the Metallurgical Laboratory, and, to enable such experiments to be done, the Chicago pile was rebuilt at a site outside of the city, named the Argonne Laboratory. A larger experimental pile was also constructed at Oak Ridge. Designed for 1,000 kilowatts, it was first operated in November 1943. Subsequent improvements permitted its temperature to be raised so that the power level was increased to more than 1,800 kilowatts.

DEVELOPMENT OF THE BOMB

Theoretical and experimental problems connected with the bomb itself were initiated at Chicago in the summer of 1942 under the direction of J. R. Oppenheimer. It was finally decided, for reasons of secrecy, to move this research to a new laboratory erected at Los Alamos, N. M., about 30 miles from Santa Fé. This laboratory, established in the spring of 1943, was equipped with apparatus which made it the finest physics research laboratory in the world. The scientific staff assembled there included the most competent workers available. It was the highest concentration of scientific genius ever to work together in a single place.

Researches at the other installations described in this account had occurred under the tacit assumption that explosions would not take place and with precautions to prevent this, where necessary. The primary purpose of the Los Alamos laboratory was that of finding means of making the chain reaction explode. The success of these endeavors was demonstrated unquestionably on July 16, 1945 in a remote section of the Alamogordo Air Base, 120 miles southeast of Albuquerque, before a group of scientists and military officials.

With utmost despatch, preparations were made to repeat the demonstration in a more public fashion. Assembly of materials and transportation to the Pacific Area required two weeks; unfavorable weather caused further delay; the world learned the results on Aug. 5, 1945.

THE MANHATTAN DISTRICT

This account would be incomplete without further reference to the important part played by the Manhattan District. Such a military organization was well suited to tackle the enormous procurement of personnel and materiel required. Much of the technical manpower of the country was already established in other war work and great powers of persuasion or other means were needed to arrange for transfer to the bomb project. A large number of enlisted men with special qualifications were also supplied to many of the installations.

Huge quantities of materiel were required, not only for construction, but also highly technical chemicals and equipment. Sources of such materiel had to be developed, manufacturing processes devised, and manufacturers discovered who could or would do the processing. The construction of such huge plants as those at Oak Ridge and Hanford involved machinery and techniques never before utilized. Finally, it will be remembered that both of these towns, as well as the Los Alamos site, were built by the District and thousands of workers had to be accommodated at each place. Housing, transportation, stores, schools, hospitals, amusements, and all the other appurtenances of living had to be supplied to locations formerly devoted to farms, forests, or wastelands.

The Manhattan District also had charge of the important problems of security and secrecy. The high degree of success in protecting the secret shows how well this difficult task was completed.

THE FUTURE OF THE BOMB

It has been said that, although it was an extremely difficult job to develop the bomb, it will be even more difficult to know what to do with it in a world at peace. After the initial awe and wonder arising from the use of the bomb began to wear away, it became evident that legislation was necessary for domestic control and that international agreements relative to its future use were imperative. The first definite steps were taken by the introduction of legislation, known as the May-Johnson bill, into the U. S. Congress. This bill provided for a commission with almost dictatorial authority over every phase of the subject.

The scientists of the country, particularly those who had worked on the bomb, objected to this legislation because they believed that further scientific progress could occur only under complete freedom; that the Commission, as proposed in the bill, would not be subject to jurisdiction by the courts or other authority; and that the bill's passage would convince the world that the United States was opening an armaments race. They further believed that international agreements were of paramount importance if civilization were to survive, and they set out to bring all of these arguments before the people and the Congress.

In order to do this, each of the laboratories formed associations of workers and these were finally merged into a national Federation of Atomic Bomb Scientists with headquarters in Washington. It is apparent that their labors, as well as those of many other groups with similar aims, were partly responsible for the fact that the May-Johnson bill now appears to be permanently tabled.

Subsequently, a special Senate Committee on Atomic Energy was created with Senator Brien McMahon (Conn.) as chairman. Its members are Senators Vandenberg, Tydings, Connally, Hart, Johnson, Hickenlooper, Russell, Byrd, Millikin, and Austin. Competent technical advisers are attached to the committee. Public hearings began on Nov. 27, 1945 and will apparently continue for some time to come. It is the announced intention of the committee, to learn from scientists, military personnel, and others all of the pertinent facts before legislation is prepared.

Previous to these actions, in a message to Congress on Oct. 3, 1945, President Truman had warned that atomic force in ignorant or evil hands could inflict untold disaster on the nation and the world. He urged the prompt creation of means for controlling future research and development. He felt that international phases of the problem could not wait until the United Nations Organization was functioning and said that he would initiate discussions with Great Britain and other nations so that cooperation, rather than rivalry, would exist in the field of atomic power. The first such conference was held in Washington where President Truman met with Prime Ministers Attlee of Great Britain and W. L. Mackenzie King of Canada.

The three-nation declaration arising from the meetings, dated Nov. 15, 1945, concluded that: (1) the secret and production of atomic bombs can not remain the monopoly of any single nation; (2) there is no effective way to stop the use of such weapons by an aggressor nation; (3) the only protection against it and other weapons of war is the prevention of war itself. It recommended whole hearted support of the UNO in its attempts to create conditions of mutual trust and devotion to the arts of peace, the rules for achieving these objectives to be worked out by that organization. It further suggested the formation of a commission to explore the possibilities of outlawing the atomic bomb, to formulate methods of inspection and control of unauthorized manufacture of fissionable materials, and to promote exchange of scientific information so that atomic energy may be used for peace-time purposes.

On Dec. 17, 1945, a second meeting

on world problems, including those concerned with the bomb, began in Moscow. It was attended by Secretary of State James F. Byrnes, Foreign Secretary Ernest Bevin of Great Britain, and Foreign Commissar V. M. Molotoff of Russia. The three nations agreed to ask the General Assembly of the UNO to turn over to the 11 nations on the Security Council of that organization, with the addition of Canada, the problem of study and recommendation for: (1) exchange of basic scientific information for peaceful aims; (2) control of atomic energy for the same purposes; (3) elimination of this weapon from the arsenals of nations; (4) means of protecting these nations from violations and evasions of international atomic energy agreements.

THE FUTURE OF ATOMIC POWER

The more lurid and sensational of the prophets of the atomic age proclaimed Aug. 5, 1945 as the dawn of a new era. Power would be at an incredibly cheap price and in amounts vastly exceeding man's demands; automobiles and other vehicles would be driven countless numbers of miles by the power from pellets of atomic materiels inserted into these machines.

The prophets of gloom, on the other hand, and with equivalent misinformation, predicted that utilization of atomic power would not occur for 100 years or more. The truth, of course, was between these extremes but apparently closer to the vision of the optimist. The pellet-driven machines will not be immediately attainable for a very simple reason: the high levels of radioactive products accompanying fissionable materiels will be extremely dangerous to the driver. Approximately 50 tons of shielding are required for adequate protection.

In confined spaces, such as in a submarine or in a ship, where this shielding burden would be of no consequence, there are more immediate opportunities for the use of atomic power. An isolated region, where transportation difficulties might hinder the introduction of more conventional fuels, may also be considered as a suitable location for an atomic power plant, provided the advantages so gained could make the installation economically feasible. For such specialized power purposes, it seems probable that 10-20 years is not an unlikely period.

For purposes other than power, the explosive properties of a carefully controlled bomb might be exploited for opening a mineral deposit in an inaccessible region, or for other special uses. More visionary applications, such as uncovering polar regions by melting ice caps or destruction of hurricanes with an atomic bomb, can be shown to be impracticable or unlikely.

Most scientists are agreed that such applications are trivial in comparison with what might be gained by use of the newly achieved atomic knowledge in scientific research. A single pile, for example, is equivalent to more radium than has ever been mined in the history of the world. Its use for medical research, possible healing and the knowledge of disease so secured might be worth the $2,000,000,000 that the bombs cost. More specific predictions would be rash, in view of the unexpected discoveries made in pure and applied science during the last 50 years. The pages of THE AMERICAN YEAR BOOK will record them in the years to come, provided nations can agree to live together in peace and forego the annihilation of civilization that will inevitably result if atomic bombs are used in another war.

THE MILITARY OCCUPATION OF JAPAN

By William M. Schuyler
Editor, *The American Year Book*

GENERAL

In the whole course of its history, the United States has undertaken no more dramatic venture abroad than the current military occupation of Japan, nor one involving like responsibilities and potentialities. Only the events of the last four months of the year 1945 come within the scope of this review. They represent little more than the beginning of what may well prove to be one of the world's great social and political revolutions.

The final collapse of Japan, precipitated by the atomic bombing of Hiroshima and Nagasaki, immediately posed the problem of the administrative control of the defeated empire. As the most directly challenged of the United Nations belligerents, following the 1941 Pearl Harbor attack, it fell to the lot of the United States to assume the chief burden. As the supreme commander of the military forces in the Pacific theater of the war, it fell to the lot of Gen. Douglas MacArthur to administer the machinery of control. Having established his headquarters in the United States Embassy at Tokyo on Sept. 8, General MacArthur proceeded in the performance of his new duties with characteristic tact, firmness, and promptitude. The next day he announced in effect that the Japanese would be permitted to govern themselves as long as they and the Emperor obeyed orders issued by the Allied command.

THE MOSCOW AGREEMENTS ON JAPAN

At the December meeting of the foreign ministers of the United States, Great Britain, and Russia in Moscow, an accord on Japan was reached which considerably modified the original American view that other nations should be restricted to an advisory role in the administration of Japan. Russia had desired to establish a four-power control régime in Tokyo, and Great Britain had desired to have more than merely the power to advise. The accord reached at Moscow provided that American control be merged into an 11-nation organization in which the United States, the Soviet, Great Britain, and China would each have a veto power over the formulation of new policies or the modification of those already in existence. The United States, however, would have the most important single voice among the Big Four, and General MacArthur would retain significant powers. The new control arrangements, it appeared, did not meet with General MacArthur's approval but he did not specify his reasons for disapproving and made it clear that he would try to make them work. Nor was the reaction in Congressional and American press circles entirely favorable. Regarding the plan itself, the Foreign Policy Association commented in its *Bulletin:*

"Unquestionably the plan drawn up by the Big Three, with the concurrence of China, is a complicated scheme, containing many possibilities of friction and requiring the highest degree of tact and good will on the part of the powers and their representatives. But international cooperation is always a more complex matter than action by a single state, and the arrangements for Japan could hardly be simple in view of the divergent attitudes that had to be reconciled within a single formula. The most important fact is that the three foreign ministers were able to agree on a cooperative policy, an objective which properly overrides other considerations. With regard to General MacArthur, the Moscow accord is in no sense a reflection on his services; but, like all American occupation officials—and this was true of General Eisenhower in Germany—he is necessarily subject to a higher political authority."

UNITED STATES GOVERNMENT STATEMENT OF POLICY RELATING TO JAPAN

It is pertinent, nevertheless, to record the United States Government's statement of general initial policy which was prepared jointly by the State, War, and Navy Departments and approved by the President on Sept. 6. The statement was sent to General MacArthur by messenger at once, and was issued to the public on Sept. 22. "This document," it states in the introductory paragraph, "is a statement of general initial policy relating to Japan after surrender. It has been approved by the President and distributed to the Supreme Commander for the Allied Powers and to appropriate United States departments and agencies for their guidance. It does not deal with all matters relating to the occupation of Japan requiring policy determinations. Such matters as are not included or are not fully covered herein have been or will be dealt with separately." The full text of the document is appended to this review.

THE POSITION OF THE EMPEROR

The only condition attached to Japan's surrender to the Allied Powers was that the Emperor's position as sovereign should be recognized. In view of what has happened since, it would appear that the decision of the Allies to accept this condition, without, however, any commitments as to the future form of government, was wise. It meant merely that Allied orders were relayed through the Emperor who could act only in conformity with the Supreme Command's directives. No initiative on the part of the Emperor, the Cabinet, or the Diet was permitted without the scrutiny and approval of the occupying authority. On Sept. 10, the Imperial General Staff was ordered dissolved, and within a week thereafter the following orders were issued: publication of a list of 40 Japanese wanted as war criminals; dissolution of the jingoistic Black Dragon Society and the arrest of its leaders; establishment of American censorship over the Domei news agency; report on all Japanese war loot; inauguration of a re-education plan, emphasizing democracy; and the temporary suspension of the *Asahi* newspaper because of "inflammatory" articles.

On Oct. 4, General MacArthur ordered the restoration of all civil liberties, the freeing of political prisoners, and the abolition of the secret police. These orders sufficiently indicate the trend of the Allied objectives, and they were a test of the will of the Emperor and Government to cooperate. The Emperor had already broken all precedent by making a personal call on General MacArthur at his headquarters (Sept. 27). An innovation, still more startling to the Japanese people, was made by Hirohito when, in a New Year message to the empire, he disclaimed all idea of his own divinity—defined by the Japanese constitution and law—as a matter of "legends and myths." In this rescript, the Emperor reaffirmed the charter granted by the Emperor Meiji in 1868 with its pledge of free assembly and government in accordance with public opinion, and its promise to discard old usages and to give "justice and equity" to "all common people" as well as to the governing class. It asked the people for unity and work and the resolve to seek civilization in peace. On this hopeful note, the occupation of Japan ended the year 1945.

ABOLITION OF SHINTO AS THE NATIONAL RELIGION

Before this took place, however, General MacArthur handed to the Japanese Government (Dec. 15) the long expected order ending all state support of the nationalistic Shinto religion of the country. The significance of this order (a document of 2,000 words) lay in its purpose to end the glorification of warrior ancestors which had been the basis of the cult of military aggression and of the Japanese conception of themselves as a superior race destined to conquer the world. Under the mantle of this cult, Japanese warmongers had safely operated. General MacArthur's order specifically abolished the Home Ministry's Shrine Board and the religious order directing the Grand Shrine of Ise, the largest in Japan; also, all public institutions training Shinto priests, all teaching of Shinto in government-supported schools, all "physical symbols of State Shinto" in public buildings, and the purging by censorship of all textbooks and teachers' manuals of Shinto doctrine and forbidding the publication of new books containing like material. In fact, the order ended the connection between Church and State but did not interfere with church property or private religious instruction.

LAND REFORM

On Dec. 18, the eighty-ninth session of the Japanese Imperial Diet ended with the passage of a land reform bill as well as a labor union bill. Both measures became law upon Cabinet announcement. The land reform measure resulted from the Supreme Command's order that the feudal system of land tenure should be abolished. That system was one of the main pillars of the militaristic system. Specifically it required the elimination of absentee ownership, provision for government credit for tenant purchases of land, stabilization of farm prices, and protection of former tenants against the possibility of their again becoming sharecroppers. By this measure, the peasant would be freed, in the words of General MacArthur's order, "from the bondage of the feudal absentee landowner, the mountain of debt, discriminatory taxation, and other economic ills that have oppressed him for centuries."

TEXT OF THE U. S. STATEMENT OF POLICY ON JAPAN

PART I—ULTIMATE OBJECTIVES

The ultimate objectives of the United States in regard to Japan, to which policies in the initial period must conform, are:

(a) To insure that Japan will not again become a menace to the United States or to the peace and security of the world.

(b) To bring about the eventual establishment of a peaceful and responsible Government which will respect the rights of other states and will support the objectives of the United States as reflected in the ideals and principles of the Charter of the United Nations. The United States desires that this Government should conform as closely as may be to principles of democratic self-government but it is not the responsibility of the Allied Powers to impose upon Japan any form of government not supported by the freely expressed will of the people.

These objectives will be achieved by the following principal means:

(a) Japan's sovereignty will be limited to the islands of Honshu, Hokkaido, Kyushu, Shikoku and such minor outlying islands as may be determined, in accordance with the Cairo Declaration and other agreements to which the United States is or may be a party.

(b) Japan will be completely disarmed and demilitarized. The authority of the militarists and the influence of militarism will be totally eliminated from her political, economic and social life. Institutions expressive of the spirit of militarism and aggression will be vigorously suppressed.

(c) The Japanese people shall be encouraged to develop a desire for individual liberties and respect for fundamental human rights, particularly the freedoms of religion, assembly, speech, and the press. They shall also be encouraged to form democratic and representative organizations.

(d) The Japanese people shall be afforded opportunity to develop for themselves an economy which will permit the peacetime requirements of the population to be met.

PART II—ALLIED AUTHORITY

1. Military Occupation.

There will be a military occupation of the Japanese home islands to carry into effect the surrender terms and further the achievement of the ultimate objectives stated above. The occupation shall have the character of an operation in behalf of the principal Allied Powers acting in the interests of the United Nations at war with Japan. For that reason, participation of the forces of other nations that have taken a leading part in the war against Japan will be welcomed and expected. The occupation forces will be under the command of a supreme commander designated by the United States.

Although every effort will be made, by consultation and by constitution of appropriate advisory bodies, to establish policies for the conduct of the occupation and the control of Japan which will satisfy the principal Allied Powers, in the event of any differences of opinion among them, the policies of the United States will govern.

2. Relationship to Japanese Government.

The authority of the Emperor and the Japanese Government will be subject to the Supreme Commander, who will possess all powers necessary to effectuate the surrender terms and to carry out the policies established for the conduct of the occupation and the control of Japan.

In view of the present character of Japanese society and the desire of the United States to attain its objectives with a minimum commitment of its forces and resources, the Supreme Commander will exercise his authority through Japanese governmental machinery and agencies, including the Emperor, to the extent that this satisfactorily furthers United States objectives. The Japanese Government will be permitted, under his instructions, to exercise the normal powers of government in matters of domestic administration.

This policy, however, will be subject to the right and duty of the Supreme Commander to require changes in governmental machinery or personnel or to act directly if the Emperor or other Japanese authority does not satisfactorily meet the requirements of the Supreme Commander in effectuating the surrender terms. This policy, moreover, does not commit the Supreme Commander to support the Emperor or any other Japanese governmental authority in opposition to evolutionary changes looking toward the attainment of United States objectives. The policy is to use the existing form of government in Japan, not to support it.

Changes in the form of government initiated by the Japanese people or Government in the direction of modifying its feudal and authoritarian tendencies are to be permitted and favored. In the event that the effectuation of such changes involves the use of force by the Japanese people or Government against persons opposed thereto, the Supreme Commander should intervene only where necessary to insure the security of his forces and the attainment of all other objectives of the occupation.

3. Publicity as to Policies

The Japanese people, and the world at large, shall be kept fully informed of the objectives and policies of the occupation, and of progress made in their fulfillment.

PART III—POLITICAL

1. Disarmament and Demilitarization.

Disarmament and demilitarization are the primary tasks of the military occupation and shall be carried out promptly and with determination. Every effort shall be made to bring home to the Japanese people the part played by the military and naval leaders, and those who collaborated with them, in bringing about the existing and future distress of the people.

Japan is not to have an army, navy, air force, secret police organization, or any civil aviation. Japan's ground, air and naval forces shall be disarmed and disbanded and the Japanese Imperial General Headquarters, the General Staff and all secret police organizations shall be dissolved. Military and naval matériel, military, naval and civilian aircraft shall be surrendered and shall be disposed of as required by the Supreme Commander.

High officials of the Japanese Imperial General Headquarters, and

General Staff, other high military and naval officials of the Japanese Government, leaders of ultra-nationalist and militarist organizations and other important exponents of militarism and aggression will be taken into custody and held for future disposition. Persons who have been active exponents of militarism and militant nationalism will be removed and excluded from public office and from any other position of public or substantial private responsibility. Ultra-nationalistic or militaristic social, political, professional and commercial societies and institutions will be dissolved and prohibited.

Militarism and ultra-nationalism, in doctrine and practice, including para-military training, shall be eliminated from the educational system. Former career military and naval officers, both commissioned and non-commissioned, and all other exponents of militarism and ultra-nationalism shall be excluded from supervisory and teaching positions.

Laws, decrees and regulations which establish discriminations on grounds of race, nationality, creed or political opinion shall be abrogated; those which conflict with the objectives and policies outlined in this document shall be repealed, suspended or amended as required; and agencies charged specifically with their enforcement shall be abolished or appropriately modified. Persons unjustly confined by Japanese authority on political grounds shall be released. The judicial, legal and police systems shall be reformed as soon as practicable to conform to the policies set forth in Articles 1 and 3 of this Part III and thereafter shall be progressively influenced, to protect individual liberties and civil rights.

2. War Criminals.

Persons charged by the Supreme Commander or appropriate United Nations agencies with being war criminals, including those charged with having visited cruelties upon United Nations prisoners or other nationals, shall be arrested, tried and, if convicted, punished. Those wanted by another of the United Nations for offenses against its nationals shall, if not wanted for trial or as witnesses or otherwise by the Supreme Commander, be turned over to the custody of such other nation.

3. Encouragement of Desire for Individual Liberties and Democratic Processes.

Freedom of religious worship shall be proclaimed promptly on occupation. At the same time it should be made plain to the Japanese that ultra-nationalistic and militaristic organizations and movements will not be permitted to hide behind the cloak of religion.

The Japanese people shall be afforded opportunity and encouraged to become familiar with the history, institutions, culture and the accomplishments of the United States and the other democracies. Association of personnel of the occupation forces with the Japanese population should be controlled, only to the extent necessary, to further the policies and objectives of the occupation.

Democratic political parties, with rights of assembly and public discussion, shall be encouraged, subject to the necessity for maintaining the security of the occupying forces.

PART IV—ECONOMIC

1. Economic Demilitarization.

The existing economic basis of Japanese military strength must be destroyed and not be permitted to revive.

Therefore, a program will be enforced containing the following elements, among others; the immediate cessation and future prohibition of production of all goods designed for the equipment, maintenance, or use of any military force or establishment; the imposition of a ban upon any specialized facilities for the production or repair of implements of war, including naval vessels and all forms of aircraft; the institution of a system of inspection and control over selected elements in Japanese economic activity to prevent concealed or disguised military preparation; the elimination in Japan of those selected industries or branches of production whose chief value to Japan is in preparing for war; the prohibition of specialized research and instruction directed to the development of war-making power; and the limitation of the size and character of Japan's heavy industries to its future peaceful requirements, and restriction of Japanese merchant shipping to the extent required to accomplish the objectives of demilitarization.

The eventual disposition of those existing production facilities within Japan which are to be eliminated in accord with this program, as between conversion to other uses, transfer abroad, and scrapping will be determined after inventory. Pending decision, facilities readily convertible for civilian production should not be destroyed, except in emergency situations.

2. Promotion of Democratic Forces.

Encouragement shall be given and favor shown to the development of organizations in labor, industry and agriculture, organized on a democratic basis. Policies shall be favored which permit a wide distribution of income and of the ownership of the means of production and trade.

Those forms of economic activity, organization and leadership shall be favored that are deemed likely to strengthen the peaceful disposition of the Japanese people, and to make it difficult to command or direct economic activity in support of military ends.

To this end it shall be the policy of the Supreme Commander:

(A) To prohibit the retention in or selection for places of importance in the economic field of individuals who do not direct future Japanese economic effort solely toward peaceful ends; and

(B) To favor a program for the dissolution of the large industrial and banking combinations which have exercised control of a great part of Japan's trade and industry.

3. Resumption of Peaceful Economic Activity.

The policies of Japan have brought down upon the people great economic destruction and confronted them with the prospect of economic difficulty and suffering. The plight of Japan is the direct outcome of her own behavior, and the Allies will not undertake the burden of repairing the damage. It can be repaired only if the Japanese people renounce all military aims and apply themselves diligently and with single purpose to the ways of peaceful living. It will be necessary for them to undertake physical reconstruction, deeply to reform the nature and direction of their economic activities and institutions, and to find useful employment for their people along lines adapted to and devoted to peace. The Allies have no intentions of imposing conditions which would prevent the accomplishment of these tasks in due time.

Japan will be expected to provide goods and services to meet the needs of the occupying forces to the extent that this can be effected without causing starvation, widespread disease and acute physical distress.

The Japanese authorities will be expected, and if necessary directed, to maintain, develop and enforce programs that serve the following purposes:

(a) To avoid acute economic distress.

(b) To assure just impartial distribution of available supplies.

(c) To meet the requirements for reparations deliveries agreed upon by the Allied Governments.

(d) To facilitate the restoration of Japanese economy so that the reasonable peaceful requirements of the population can be satisfied.

In this connection, the Japanese authorities on their own responsibility shall be permitted to establish and administer controls over economic activities, including essential national public services, finance, banking, and production and distribution of essential commodities, subject to the approval and review of the Supreme Commander to assure their conformity with the objectives of the occupation.

4. Reparations and Restitution.

Reparations

Reparations for Japanese aggression shall be made:

(a) Through the transfer—as may be determined by the appropriate Allied authorities—of Japanese property located outside of the territories to be retained by Japan.

(b) Through the transfer of such goods or existing capital equipment and facilities as are not necessary for a peaceful Japanese economy or the supplying of the occupying forces. Exports other than those directed to be shipped on reparation account or as restitution may be made only to those recipients who agree to provide necessary imports in exchange or agree to pay for such exports in foreign exchange. No form of reparation shall be exacted which will interfere with or prejudice the program for Japan's demilitarization.

Restitution

Full and prompt restitution will be required of all identifiable looted property.

5. Fiscal, Monetary, and Banking Policies.

The Japanese authorities will remain responsible for the management and direction of the domestic fiscal, monetary and credit policies, subject to the approval and review of the Supreme Commander.

6. International Trade and Financial Relations.

Japan shall be permitted eventually to resume normal trade relations with the rest of the world. During occupation and under suitable controls, Japan will be permitted to purchase from foreign countries raw materials and other goods that it may need for peaceful purposes, and to export goods to pay for approved imports.

Control is to be maintained over all imports and exports of goods, and foreign exchange and financial transactions. Both the policies followed in the exercise of these controls and their actual administration shall be subject to the approval and supervision of the Supreme Commander in order to make sure that they are not contrary to the policies of the occupying authorities, and in particular that all foreign purchasing power that Japan may acquire is utilized only for essential needs.

7. Japanese Property Located Abroad.

Existing Japanese external assets located in territories detached from Japan under the terms of surrender, including assets owned in whole or part by the Imperial Household and Government, shall be revealed to the occupying authorities and held for disposition according to the decision of the Allied authorities.

8. Equality of Opportunity for Foreign Enterprise Within Japan.

The Japanese authorities shall not give, or permit any Japanese business organization to give, exclusive or preferential opportunity or terms to the enterprise of any foreign country, or cede to such enterprise control of any important branch of economic activity.

9. Imperial Household Property.

Imperial Household property shall not be exempted from any action necessary to carry out the objectives of the occupation.

NEAR EASTERN AFFAIRS

By Grant S. McClellan

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GENERAL

It was apparent before the close of hostilities in 1945 that further military operations would not take place in the Near East, yet the first period of peace brought many difficult problems of adjustment to the Arab lands. The most outstanding developments of the year concerned the Franco-Syrian dispute and the November uprising in the northwest Azerbaijan province of Iran. Of major significance also was the fresh start made toward a solution of the long-standing Palestine question by the institution of a joint Anglo-American Commission to study the Palestine mandate in relation to the European refugee problem. Both the Azerbaijan coup and the Franco-Syrian conflict, as well as the new Palestine Commission, reflected continued Big Three interest in the Near East.

RUSSIAN AND AMERICAN INTEREST

While the year 1945 showed a definite decline of French influence in the Levant, Russian and American concern about the Near East was on the rise. No clearer evidence of this was needed in the case of the United States than President Roosevelt's dramatic meeting with the Kings of Saudi Arabia and Egypt after the Yalta Conference. Aside from the Soviet Union's renewed concern about Iran, Russia also made demands along Turkey's north-eastern frontier and proposed changes for the Dardanelles, but no definitive charges were made during the year with regard to the Turkish border or the Straits. Nor were final decisions made during 1945 about Italy's former colonial holdings, although their ultimate disposition will vitally affect Near Eastern Affairs.

THE ARAB LEAGUE

Progress toward raising the Arab League—proposed at the Alexandrian Arab conference in September-October, 1944—to an effective political level continued during the year, but its backing and ultimate designs were still largely unknown. Convening in Cairo during the latter part of February and early March, the representatives of the Arab states signed the Constitution of the new League on March 22, 1945. Members included Egypt, Iraq, Syria, the Lebanon, Transjordan, Saudi Arabia, and the Yemen. The League also appointed an Arab representative for Palestine. The general aims of the League are stated to be the safeguarding of the independence of Arab states, strengthening their friendship and coordinating their political action. In pursuance of these objectives the League issued statements from time to time during the remainder of the year with respect to Palestine, disapproving of further Zionist efforts there, and objecting to the preservation of French influence in the case of Syria and the Lebanon.

EGYPT

Anti-foreign feeling similar to that in Iran, Palestine, and Syria was also expressed in Egypt, but little other common action occurred among the Arab states during 1945. Those Near Eastern countries—not at war with Germany and Japan—so aligned themselves with the Allies after a hint from the Yalta conferees that they must do so in order to participate in later peace negotiations. Following this lead, Arab statesmen took an active part in the San Francisco Conference in mid-summer, but they made no attempt to incorporate the Arab League into the framework of the newly formed United Nations Organization.

Effective economic cooperation among the Arab states came to a halt with the dissolution of the Middle East Supply Center. This agency, although supported by Britain and the United States, was doomed so far as post-war use was concerned. Its essential wartime task of distributing limited imports in the region gave it an unwelcome aspect. British reports indicated some attempt to salvage its work by continuing expert economic and technical assistance to the Arab governments, but more far-reaching and much needed economic cooperation among the Arab states and the great powers, which many hoped might develop from the Middle East Supply Center, proved impossible. At the end of 1944, however, an economic and financial agreement between Egypt and Great Britain was concluded with the cooperation of the American authorities. Under the terms of this agreement British imports were increased, restrictions on other imports removed, and Egypt was allocated more than £10,000,000 for purchases outside the sterling bloc during 1945.

FRANCO-SYRIAN DISPUTE

The Syrian crisis mounted just as the United Nations were convening at San Francisco. It proved an object lesson to the nations attempting to establish peace machinery for the post-war period, and it also revealed the decline of French power in the Levant. After Prime Minister Churchill's peremptory cease-fire request of May 31, and the dispatch of British troops to restore order, the French Government had little recourse but angry refusal to deal with the matter solely as a Franco-British affair. Early in June General de Gaulle clearly indicated his preference for a five-power meeting to discuss not only the problems of Syria and the Lebanon, but those of the entire Middle East. While the British did not object to United States interest in solving the dispute, the Foreign Office rejected Russian participation as suggested by the French.

France's claim that it needed to safeguard its route to Indo-China by a privileged position in the Levant was met by similar claims on the part of Britain and the United States, then involved in deploying troops to the Far East, but within the larger framework of finding terms on which both France and the Levant states might conclude the Mandate, the crucial issue during most of 1945 was the withdrawal of French influence over the *Troupes Spéciale* in Syria and the Lebanon. As noted above, the Arab League pledged its support to the Levant states, but no final conference was called among the powers to deal with the dispute. By the year's end, French control of the military forces there had been largely assumed by local authorities. An agreement signed in London on Dec. 13, 1945 between France and Britain pledged removal of remaining military forces of both nations from the Levant. The Franco-British Accord, by its terms for joint consultation on Middle Eastern affairs, goes far toward settling the long-standing rivalry between Britain and France in the area formerly under the Turkish Empire. But both Syria and the Lebanon have consistently refused to sign a treaty with France until possessed of their full sovereignty. Final disposition of the Mandatory rights remaining to France will doubtless be made only after a pattern has been established for dissolving the Mandate system or incorporating it under the newly established trusteeship régime of the United Nations Organization.

IRAN

On Nov. 16 an official statement from Teheran announced the outbreak of a revolt in the Azerbaijan province of Iran lying next to the Soviet Republic of the same name. At first the disturbance appeared as an attempt to force a change of government in Teheran, but the Iranian cabinet survived during the final two months of 1945, although the rebels proceeded to erect an autonomous government at Tabriz. While the insurgents charged the central government with corruption and inefficiency, Teheran countered the attack with charges that the coup was Russian inspired. Few observers doubted Soviet interest in the revolt, and this pattern was also repeated by Russian demands on Turkey.

Back of the Azerbaijan uprising lay a tangled story of internal troubles and international rivalries. Much poverty has persisted in the Azerbaijan province, although its mineral and oil wealth is known to be great. These two factors—internal poverty and foreign interest in oil—are but a mirror of general conditions throughout the Near East. Soviet action in the Iranian crisis appears new, but it is largely a resumption of older Russian aims elaborated under successive Czarist régimes. The present Soviet Republic of Azerbaijan, with the rich oil region around Baku, was ceded to Russia over a century ago by the Persian Shah after protracted fighting.

During the Second World War Soviet troops occupied the northern Iranian province in accord with an Anglo-Soviet Treaty concluded on Jan. 29, 1942. British troops controlled southern Iran, and American forces likewise were stationed in Iran after the creation of the Persian Gulf Command in 1942.

During 1945 the chief international issue at stake was the withdrawal of these military forces. Shortly after the London session of the Council of Foreign Ministers in September, it was announced that all Allied troops would evacuate the territory by March 2, 1946. When the November outbreak occurred the Iranian Premier appealed to the State Department in Washington about Soviet intervention. Secretary of State Byrnes, reminding the powers of their pledge made at Teheran in December 1943 to respect the sovereignty and political independence of Iran, sent a note to both Moscow and London suggesting that all troops be withdrawn by Jan. 1, 1946. This suggestion was met in the negative by Soviet authorities and Britain also then declined to withdraw its forces before March, 1946.

By general consensus Iran's oil wealth is considered the crux of the problem, for Russian interest, like that of Britain and the United States, is closely tied to the oil resources of the Arab world. At present the southern oil deposits of Iran are being exploited by British firms. In 1944 both Russian and United States interests attempted to gain oil concessions, and so pressed were the Iranian authorities that the government at Teheran was replaced. Iran finally decided no concessions were to be granted until after the war. When final concessions are made, Russian and American groups will doubtless both gain a hold in Iran's oil supplies. What is most significant about the jockeying for position in Iran's oil resources is the participation of all the Big Three, either by direct state requests or in support of private companies. This oil struggle in Iran is also repeated elsewhere in the Near East, although 1945 brought no further public developments about the petroleum reserves of the rich Persian Gulf region.

With respect to Iran the crucial question remained, once Azerbaijan had achieved its autonomy: Would the Soviet Union favor the direct incorporation of the Azerbaijan province in the Russian state? Moscow's policy in Iran, correct in all official statements, appeared similar to its policy in eastern Europe, where during and since the war Russia's aim has been to sponsor friendly governments on its border. The Azerbaijan disturbances were hardly settled, however, before the Foreign Ministers of the Big Three met in Moscow at the end of December. Yet that conference concluded by issuing lengthy communiques that did not touch on either the Iranian problem or other more general Near Eastern affairs.

TURKEY

The Turkish question also became acute again at this time. During the Moscow meeting of the Big Three Foreign Ministers, two noted Georgian scientists voiced demands that the Georgian people should get back lands now held by Turkey and that the USSR should have bases at three points on the Turkish straits.

Like demands were made on Turkey earlier in 1945 and announced to the press on June 25. Relations between Turkey and Russia were unsettled after March 19 when the USSR denounced the Soviet-Turkish neutrality pact of 1925. At that time Moscow asked for a change in the régime at the Straits, governed under the Montreux convention until the present. Although the Straits were demilitarized by the Treaty of Lausanne (1923) Turkey obtained the right to militarize the area when the Montreux convention was signed in 1936. In the announcement of June 25, Russia also demanded the return of the former Russian provinces of Kars and Ardahan. These territories are of strategic importance since they lie near the juncture of Turkey, Iran, and the USSR. They were ceded by the Soviet Government under the Brest-Litovsk settlement of 1918, and incorporated in Turkey by the Russo-Turkish treaty of 1921.

Early in November Secretary of State Byrnes issued a note to Turkey suggesting certain changes in the Montreux convention—that the United Nations Organization take the place of the League of Nations in the convention, and that the Straits should be opened to the merchant ships of all nations and to the warships of all Black Sea powers at all times. In addition, the United States Secretary of State suggested that, save for an agreed limited tonnage, passage should be denied to warships of other powers, except with the consent of the Black Sea powers or when they were acting on behalf of the United Nations Organization. But during 1945 Turkey resisted both Russian pressure for changes at the Straits and for Soviet acquisition of its northeastern provinces. It also refused to deal with the American suggestions for the Dardanelles until all the great powers were consulted.

NEW PALESTINE COMMISSION

In Palestine, 1945 opened and closed on a note of violence. During January two extremists, convicted of the murder of Lord Moyne, then British Resident Minister in the Near East, were sentenced to death at Cairo, and in December violent outbreaks again occurred in the British mandate. Meantime, growing resistance continued against the British White Paper policy prohibiting Jewish immigration. On the other hand, rising Arab interest in Palestine became evident during the year. After the formation of the Arab League, its representatives challenged further Zionist aims, and in a joint note submitted to the American Secretary of State on Oct. 12, representatives of Egypt, Syria, the Lebanon, and Iraq stated that a Zionist political state could only be created in Palestine by the aid of external force. Within Palestine the Arab leaders have also taken a more active interest in the problem of that country's future, and on Nov. 22 the Higher Arab Committee in Jerusalem was formed.

With the creation of the Anglo-American commission to study the Palestine problem afresh, a new start may be taken, but Zionist hopes for a quick reversal of British policy after the change of government in London were unrealized by the year's close. Foreign Secretary, Ernest Bevin, indicated in his press conference of Nov. 13, that Britain was bound not only by its pledge to erect a Jewish homeland but by respect for Arab rights in Palestine. Intention to create a Jewish state, as distinguished from a Jewish homeland, was definitely ruled out by Bevin. In his speech before the House of Commons on the same day he outlined the action his government intended to take before the Commission's report was received. According to the Foreign Secretary, the British Government would consult with the Arabs in order to facilitate the continuance of Jewish immigration. After hearing the commission's report and considering further alternatives for solving the Palestine problem, the British Government will prepare a permanent solution—if possible one agreeable to all parties—for submission to the United Nations Organization.

Before this statement was made by Bevin, however, three developments occurred in 1945 in relation to Palestine that gave new urgency to the problem of opening Palestine to further immigration. One was the direct intervention of President Truman by his letter to Prime Minister Attlee of Aug. 31, asking that 100,000 additional Jewish refugees from Europe be permitted to enter Palestine. The President's interest in the question arose as a result of investigations made by American officials in Germany into the wretched treatment accorded Jews since the close of the war. In reply the British Government suggested the creation of a joint Anglo-American commission to study the problem of Europe's Jewry and the Palestine controversy. The American Government acquiesced in this request, and the creation of the commission followed on Nov. 13. Meantime, letters exchanged between President Roosevelt and King Ibn Saud of Saudi Arabia, released on Oct. 18, indicated that the late President had assured the King that no settlement would be made about Palestine without consultation with both Arabs and Jews, and that no action hostile to the Arab peoples would be taken.

All of these developments—the continued plight of Europe's remaining Jewry, the publication of the Roosevelt-Ibn Saud correspondence, and the creation of the new commission—were considered by Zionist sources to amount to a severe setback for their plans, but the encouraging note about Palestine in 1945 was the official association of the United States with Britain in determining the future of the mandate. Heretofore, great public pressure has been raised in America about Palestine, but little if any public action has been taken. The new commission of enquiry is to examine political, economic, and social conditions in Palestine as they relate to the problem of Jewish immigration. Its terms of reference are broad, and in examining conditions of Jewish populations in Europe, it is hoped that the problem there may be alleviated along with arriving at final and hopeful decisions about Palestine.

THE UNITED STATES AND LATIN AMERICA

By Graham H. Stuart
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INTER-AMERICAN CONFERENCE ON PROBLEMS OF WAR AND PEACE

The most important event in Pan-American relations of the year 1945 was the conference at Mexico City Feb. 21 to March 8. It will be remembered that in the fall of 1944 Argentina had made a formal request to the Pan American Union that an Inter-American Conference of Foreign Ministers be held to consider her relations with the other American republics. The United States was opposed to calling a conference upon such an issue and countered by suggesting a conference of the American states cooperating in the war effort to consider war and post-war problems. The Governing Board of the Pan American Union accepted the proposal of the United States with the understanding that the Argentine situation might be placed upon the agenda. However, under this arrangement Argentina, which had not been cooperating with the other American states in the war effort, would not be a member of the Conference.

On Jan. 10, 1945, the Mexican Government extended an invitation for a meeting in Mexico City to consider the following agenda: (1) Further cooperative measures for the prosecution of the war; (2) problem of an international organization to maintain peace and security so as to fit the inter-American system into a world organization; (3) economic and social problems during the war and the transition to peace and further economic cooperation to raise the standard of living; (4) the request of Argentina.

All of the republics except Argentina sent representative delegations, for the most part headed by the Ministers of Foreign Affairs. The United States delegation of 79 was headed by Secretary of State Stettinius and included Senators Connally and Austin, Representatives Bloom, Johnson, and Rogers, and Ambassadors Messersmith and Berle. Señor Ezequiel Padilla, Foreign Minister of Mexico, was elected President of the Conference.

With regard to wartime collaboration, it was decided that the Inter-American Defense Board had proven so satisfactory that it was agreed that a permanent military agency consisting of representatives of each of the General Staffs be established to collaborate for the defense of the Western Hemisphere. It was recommended that governments be given control over the manufacture and distribution of armaments both within their territories and internationally. It was further recommended that the Emergency Advisory Committee for Political Defense prepare a program to eradicate the remaining centers of Axis subversive influence, to prevent the reentry of deported persons, and to prohibit the admission of war criminals or agents of the Axis.

With regard to international organization, the Latin American states were not satisfied with the Dumbarton Oaks formula; they desired a strong regional agreement against the aggressor. The United States was concerned lest regional agreements should interfere with the new world organization which was to be established. The resulting compromise known as the Act of Chapultepec was unquestionably the most important result of the Conference.

THE ACT OF CHAPULTEPEC

The Act opens with an introductory statement of principles as established by previous conferences from 1890 to 1940, and concludes with a declaration that "the security and solidarity of the Continent are affected to the same extent by an act of aggression against any of the American states by a non-American state as by an act of aggression of an American state against one or more American states."

There follows a declaration defining aggression as armed trespass and stating that, if aggression occurs or is being prepared against any American state, the signatory states will consult as to what measures should be taken. For the existing war period such measures may include the breaking of diplomatic and consular relations, severance of all methods of communications, economic boycott, and use of armed force. For the period after the war a treaty will be concluded of a similar character which shall constitute a regional arrangement for the maintenance of peace and security in the Western Hemisphere, the said arrangement to be consistent with the purposes and principles of the general international organization.

REORGANIZATION AND STRENGTHENING OF THE INTER-AMERICAN SYSTEM

Of almost equal importance were the proposals for the reorganization, consolidation and strengthening of the Inter-American system. The Inter-American Conferences were to be held every four years instead of every five as hitherto, the next meeting to be in Bogota in 1946. The meetings of the Ministers of Foreign Affairs were to be held annually except in the year when an Inter-American Conference of the American states should be held.

The Governing Board of the Pan American Union henceforth was to consist of one *ad hoc* delegate from each American republic with the rank of ambassador but not a part of the diplomatic mission. In this way states whose governments were not recognized would still have representatives in the Governing Board of the Union.

The Governing Board was to be given broader jurisdiction so that it might act on every matter affecting the inter-American system and the solidarity and general welfare of the American states. The Chairman of the Board was to be elected annually and he was not to be eligible for immediate reelection. The Director General should be chosen for a ten-year term and not be reeligible for reelection. Also, successive Directors should be of different nationalities.

Such agencies as the Inter-American Juridical Committee, Emergency Advisory Committee for Political Defense, and Inter-American Defense Board should continue to function until the meeting in Bogota. A permanent Inter-American Economic and Social Council was created to replace the emergency agency now functioning as the Inter-American Financial and Economic Advisory Committee. The Governing Board of the Pan American Union was charged with preparing a draft charter to incorporate their recommendations.

The other two principal achievements were the "Declaration of Mexico" which reaffirmed the principles of international law and justice in inter-American relations and the "Economic Charter of the Americas" an economic Magna Carta for the American Republics.

At the end of the Conference it was agreed that, in reply to the communication from Argentina, a resolution be passed deploring the fact that the Argentine nation had not yet taken steps which would have permitted its participating in the Inter-American Conference and expressing the desire that Argentina change its policy so as to cooperate with the other American nations to the end that it might achieve its incorporation into the United Nations as a signatory to their Joint Declaration and as an adherent to the Final Act of the Conference.

In accordance with this recommendation, Argentina declared war on March 27, 1945 against the Axis Powers. On April 4 the Governing Board of the Pan American Union unanimously approved a motion to open the Final Act to Argentina for adhesion, and on April 9 the government of Argentina was recognized by the United States and three other American Republics.

The Conference of Mexico City was an important forerunner of the San Francisco Conference, and its 61 resolutions gave assurance that a regional organization already existed in the Western Hemisphere for the maintenance of peace and that it would be strengthened and reorganized to become a vital part of the new world organization.

RELATIONS WITH ARGENTINA

After Argentina had been received back into the inter-American family of nations, it was assumed that her admission to the San Francisco Conference would be assured in spite of the Péron fascist régime. However, the Russian delegate Foreign Commissar Molotoff's request for a few days consideration to be sure that Argentina had really mended her ways brought about an acrimonious debate. United States Assistant Secretary of State Nelson A. Rockefeller, with the support of the Latin American Republics, forced the issue and was successful in securing admission of Argentina into the Conference.

It was not long before the United States had cause to regret her championship of the Péron clique in Argentina. The new American ambassador to Argentina, Spruille Braden, was thoroughly conversant with Latin American ways and was a thorough and courageous believer in democratic government. His first demand was for freedom of the press for foreign correspondents, and he was temporarily successful. His militant activity in favor of a liberal press brought him the title of El Domador de Coroneles (the Colonel Tamer).

The American attitude was further shown when Assistant Secretary of State Clayton announced to the press on June 25 that Germany was establishing in Argentina money, loot, trained technical personnel, and considerable influence. He declared that, of over 100 of these principal Axis enterprises, none had been eliminated. When the government attacked Braden by posters and pamphlets, the people of Buenos Aires showed their resentment by giving Braden a warm welcome upon his return from a visit to Rosario and Santa Fé. Early in August, many organizations expressed their approval of Braden's strong stand against dictatorship.

Even Assistant Secretary Rockefeller acknowledged his mistake in an address on Aug. 24, the day before he resigned, and Ambassador Braden was recalled to take his position. Mr. Braden declared that as Assistant Secretary of State he would follow the same policies that he had pursued as ambassador.

In early October it looked as though Péron had at last lost out when his government was overthrown and Péron arrested. However, the opposition failed to establish a satisfactory interim government, and before the month was over Péron seemed to be as strongly entrenched as ever. One result of the changed attitude of the United States towards Argentina was a request that the forthcoming conference in Rio de Janeiro on Oct. 20 be postponed on the ground that the

U. S. Government did not feel that it could properly negotiate or sign with the existing Argentine régime a treaty of military assistance.

RELATIONS WITH MEXICO

The United States-Mexican Water Treaty, signed Feb. 3, 1944, came up for Senate consideration early in 1945. Practically the only opponent was California, although that state's share of the Colorado River Basin was only about 6,000 square miles out of more than 240,000 square miles, and its contribution of water was exactly nothing. Assistant Secretary of State Dean Acheson made a strong plea in behalf of the treaty before the Senate Foreign Relations Committee, and the Treaty was approved by a vote of 18 to 4. When it came before the Senate, there was little effective opposition, and the treaty passed the Senate by a large majority on April 18. President Truman voiced his approval of the Senate action and declared that "By this action of the Senate the United States and Mexico join hands in a constructive businesslike program to apportion between them and develop to their mutual advantage the waters of the rivers that are in part common to them."

The Mexican Senate approved the Water Treaty on Sept. 28, 1945, and ratifications were exchanged in Washington on Nov. 8. The treaty entered into effect immediately.

In the final report of the Mexican American Commission for Economic Cooperation it was noted that 20 projects were supported, amounting to about $25,000,000, and some 38 others were approved. In addition to its activities pertaining to general problems of commerce and industrial development, studies were made by subcommittees in the field of agriculture, aviation, highway transportation, and tourism. As a result of the work of the Agricultural Sub-Commission, more than $3,000,000 worth of agricultural machinery was shipped into Mexico.

The Mexican government made the final payment of $448,020.14, settling the claims in accord with the 1934 Convention. The total paid amounted to $5,448,020.14.

INTER-AMERICAN COOPERATION

Various evidences of increasingly closer cooperation between the American Republics appeared during the year 1945. This was particularly true in the field of cultural cooperation. During the fiscal year ended June 30, 1945, 164 persons from the United States visited the South and Central American Republics as a result of awards granted for professional visits, and in similar fashion 89 came to the United States from the republics to the south. Panama alone sent 15 students to the United States on fellowships.

A number of Conferences of a non-political nature were held during the course of the year. The Third Inter-American Conference on Agriculture was held during July and August in Caracas, Venezuela. Particular consideration was given to the problems of production, marketing, and transportation. The Third Inter-American Radio Communications Conference was held in Rio de Janeiro during September, and an important telecommunications convention was signed. An Inter-American Congress of Social Science was held in Santiago, Chile in September.

The United States signed on May 24 an agreement to send a naval mission to Chile, and three days earlier an agreement was also signed to send a military mission to Guatemala. Aviation agreements were signed by the United States with Colombia, Mexico, Peru, Brazil, and Paraguay during the year. President Rios of Chile made his long-postponed visit to the United States during the year and traveled extensively throughout the country.

A particularly friendly gesture was the donation by the Costa Rican Government of a piece of land in San José, comprising some 7,200 square feet, for the construction of a new American Embassy. President Truman expressed the hearty appreciation of the United States for this generous offer.

BRAZIL

Brazil's chief contribution to the news developments of the year was the retirement of Getulio Vargas from the presidency. President Vargas on March 11, 1945 announced that he would not be a candidate in the presidential election which would be the first to be held since he came into power in 1930. The election was set for Dec. 2, and, besides the president and vice president, voting was to elect state governors as well as members of Parliament and the state legislative assemblies. At the end of October, however, President Vargas suddenly resigned, turning over his office to the Chief Justice of the Supreme Court, José Linhares. It would appear that Vargas' resignation was not wholly voluntary since he was held in "detention" for a brief time by the military. He was soon released, nevertheless, and he retired to his country estate for a "rest." He stood for election to the Senate and was elected though he had been most noncommittal about entering public life again. Eurico Gaspar Dutra, former foreign minister in the Vargas cabinet and generally regarded as sympathetic to the Vargas political ideology, was elected president. The new Congress was to meet within 60 days of the election for the purpose of drafting a constitution to replace the 1937 charter drafted under Vargas' guidance. In all these events, however, there was little to involve United States relations in any way. In any event the political trend appeared to be in the direction of a more democratic régime and the return to constitutional forms, a trend certainly in harmony with hemispheric objectives.

FOREIGN SERVICE OF THE UNITED STATES

By Selden Chapin

Director, Office of Foreign Service, State Department

ADMINISTRATIVE REGULATIONS

The administrative regulations issued in pursuance of the Foreign Service Act of Feb. 23, 1931, as amended, are to be found in Executive Order No. 8696 of April 18, 1940. These regulations implement the act by providing, among other things, for a Board of Foreign Service Personnel, a Board of Examiners and a Board of Foreign Service Officers' Training School.

BOARD OF FOREIGN SERVICE PERSONNEL

The duties of this Board are to examine into the character, ability, efficiency, experience, and general availability of all members of the Foreign Service with a view to promotions, transfers, and separations; to consider controversies or delinquencies among the Service personnel, and to recommend for promotion to the grade of minister those officers who have shown special capacity. The Board is composed of not more than three Assistant Secretaries of State, an officer of the Department of Commerce, and an officer of the Department of Agriculture. One of the Assistant Secretaries of State is the Assistant Secretary who has supervision over the Division of Foreign Service Personnel and is chairman of the Board. The members of the Departments of Commerce and Agriculture sit only when nominations and assignments of Commercial and Agricultural Attachés, the selection or assignment of Foreign Service officers for specialized training in commercial or agricultural work, or matters of interest to those Departments, are under consideration. The Chief of the Division of Foreign Service Personnel and one other member of the Division may attend the meetings of the Board, but are not entitled to vote in its proceedings.

FOREIGN SERVICE OF THE UNITED STATES

DIPLOMATIC PERSONNEL

AMBASSADORS

	Accredited by United States		Accredited to United States	
Argentina	———		Señor Dr. Don Oscar Ibarra García	1945
Belgium	Charles Sawyer[1]	1944	Baron Silvercruys	1945
Bolivia	Walter Thurston	1944	Señor Don Victor Andrade	1944
Brazil	Adolf A. Berle Jr.	1945	Mr. Carlos Martins	1939
Canada	Ray Atherton	1943	Mr. Lester B. Pearson	1945
Chile	Claude G. Bowers	1939	Señor Don Marcial Mora	1944
China	Gen. George C. Marshall	1945	Dr. Wei Tao-ming	1942
Colombia	John C. Wiley	1944	Señor Don Carlos Sanz de Santamaria	1945
Costa Rica	Hallett Johnson	1944	Señor Don Francisco de P. Gutierrez	1944
Cuba	R. Henry Norweb	1945	Señor Dr. Guillermo Belt	1944
Czechoslovakia	Laurence A. Steinhardt	1944	Mr. Vladimír Hurban[2]	1943
Dominican Republic	Joseph F. McGurk	1945	Señor Don Emilio García Godoy	1945
Ecuador	Robert M. Scotten	1943	Señor Galo Plaza	1944
El Salvador	John F. Simmons	1944	Señor Dr. Don Héctor David Castro	1945
France	Jefferson Caffery	1944	Mr. Henri Bonnet	1945
Great Britain	John G. Winant	1941	The Rt. Hon. the Earl of Halifax, K.G.	1941
Greece	Lincoln MacVeagh	1943	Mr. Cimon P. Diamantopoulos[3]	1942
Guatemala	Edwin Jackson Kyle	1945	Señor Jorge Garcia Granados	1945
Haiti	Orme Wilson	1944	Mr. Jacques C. Antoine	1945
Honduras	John D. Erwin	1943	Señor Dr. Don Julían R. Cáceres[4]	1943
Iran	Wallace Murray	1945	Mr. Mohammed Shayesteh	1940
Italy	Alexander C. Kirk	1944	Signor Alberto Tarchiani	1945
Mexico	George S. Messersmith	1941	Señor Dr. Don Antonio Espinosa de los Monteros—appointed	1945
Netherlands	Stanley K. Hornbeck	1944	Dr. A. Loudon[5]	1942
Nicaragua	Fletcher Warren	1945	Señor Dr. Don Guillermo Sevilla Sacasa	1943
Norway	Lithgow Osborne	1944	Mr. Wilhelm Munthe de Morgenstierne[6]	1942
Panama	Brig. Gen. Frank T. Hines—appointed	1945	Señor Dr. Don J. J. Vallarino	1945
Paraguay	Willard L. Beaulac	1944	Señor Dr. Don Celso R. Velázquez	1942
Peru	William D. Pawley	1945	Señor Don Pedro Beltrán	1944
Poland	Arthur Bliss Lane	1944	Mr. Janusz Zoltowski, Chargé d'Affaires ad interim	1945
Portugal	Herman B. Baruch	1945	Dr. João Antonio de Bianchi[7]	1944
Spain	Norman Armour	1944	Señor Don Juan Francisco de Cárdenas	1939
Turkey	Edwin C. Wilson	1945	Mr. Hüseyin Ragip Baydur	1945
Union of Soviet Socialist Republics	Lt. Gen. Walter Bedell Smith	1946	Mr. Andrei A. Gromyko	1943
Uruguay	William Dawson	1941	Dr. Juan Carlos Blanco	1941
Venezuela	Frank P. Corrigan	1939	Señor Dr. Don Diógenes Escalante[8]	1939
Yugoslavia	Richard C. Patterson, Jr.—appointed	1944	Mr. Stanoje Simic	1945

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[1] Accredited also to Luxembourg.
[2] E. E. and M. P. from December 30, 1936 to June 14, 1943.
[3] E. E. and M. P. from February 13, 1940 to October 6, 1942.
[4] E. E. and M. P. from July 18, 1939 to May 4, 1943.
[5] E. E. and M. P. from December 22, 1938 to May 7, 1942.
[6] E. E. and M. P. from June 8, 1934 to May 13, 1942.
[7] E. E. and M. P. from September 20, 1933 to July 12, 1944.
[8] E. E. and M. P. from October 6, 1936 to March 22, 1939.

II. INTERNATIONAL AFFAIRS AFFECTING THE UNITED STATES

DIPLOMATIC PERSONNEL

MINISTERS

	Accredited by United States		Accredited to United States	
Afghanistan	Ely E. Palmer	1945	Mr. Abdol Hosayn Aziz	1943
Australia	Nelson T. Johnson	1941	Sir Frederic Eggleston	1944
Austria[1]	John G. Erhardt, Foreign Service Officer with rank of minister	1945	———	
Denmark	Josiah Marvel, Jr.—appointed	1946	Mr. Henrik de Kauffmann	1939
Egypt	S. Pinkney Tuck	1944	Mr. Mahmoud Hassan	1938
Estonia	Legation at Tallinn closed		Mr. Johannes Kaiv, Acting Consul General of Estonia in New York City in charge of Legation	1939
Ethiopia	Felix Cole—appointed	1945	Blatta Ephrem Tewelde Medhen	1943
Finland	Maxwell M. Hamilton	1945	———	
Hungary[1]	H. F. Arthur Schoenfeld, U. S. representative with personal rank of minister	1945	———	
Iceland	Louis G. Dreyfus, Jr.	1944	Mr. Thor Thors	1941
Iraq	———		Mr. Ali Jawdat	1942
Ireland	David Gray	1940	Mr. Robert Brennan	1938
Latvia	———		Dr. Alfred Bilmanis	1935
Lebanon	George Wadsworth[2]	1944	Dr. Charles Malik	1945
Liberia	Lester A. Walton	1935	———	
Lithuania	Legation at Kaunas closed		Mr. Povilas Zadeikis	1935
Luxembourg	Charles Sawyer[3]	1944	Mr. Hugues Le Gallais	1940
Morocco	Paul H. Alling	1945	———	
New Zealand	Kenneth S. Patton	1944	Mr. C. A. Berendsen	1944
Saudi Arabia	Col. William A. Eddy	1944	———	
Siam	———		Mom Rajawongse Seni Pramoj	1940
Sweden	Herschel V. Johnson	1941	Mr. Herman Eriksson	1945
Switzerland	Leland Harrison	1937	Mr. Charles Bruggmann	1939
Syria	George Wadsworth[4]	1944	Dr. Nazem al-Koudsi	1945
Union of South Africa	Gen. Thomas Holcomb	1944	Mr. H. T. Andrews	1945

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[1] U. S. Mission.
[2] Accredited also to Syria.
[3] Accredited also to Belgium.
[4] Accredited also to Lebanon.

BOARD OF EXAMINERS

The duties of the Board are to hold examinations of applicants for admission to the Foreign Service. The examinations, both written and oral, are open only to Americans of good standing between the ages of 21 and 35, specially designated by the President for examination, who have been citizens of the United States for at least 15 years, who are physically, mentally, and temperamentally qualified for the proper performance of the duties of the Foreign Service, and who are not married to aliens. American clerks who have rendered satisfactory service in the Foreign Service for a period of five years immediately preceding the submission of their application for appointment as a Foreign Service officer may be exempted by the Board from written examinations and may be granted certain exceptions concerning age limitations. The Board is composed of three Assistant Secretaries of State, a director of the Office of the Foreign Service, an officer of the Department of Commerce, an officer of the Department of Agriculture, the Chief of the Division of Foreign Service Personnel of the Department of State, and the Chief Examiner of the Civil Service Commission.

FOREIGN SERVICE OFFICERS' TRAINING SCHOOL

The school is maintained in the Department of State for the instruction of new appointees to the Foreign

CLASSIFICATION, FOREIGN SERVICE 1945

	Salary	Number
Head of Missions:		
Ambassadors	$17,500	26
Ambassadors	10,000	10
Ministers	17,500	1
Ministers	10,000	17
Ministers	9,000	1
Ministers	8,750	1
		56
Foreign Service Officers:		
Class I	$9,800 to $10,000	58
Class II	8,750 to 9,695	73
Class III	7,700 to 8,645	101
Class IV	6,650 to 7,595	94
Class V	5,600 to 6,020	128
Class VI	5,070 to 5,495	135
Class VII	4,520 to 4,960	68
Class VIII	3,970 to 4,410	53
Unclassified (A)	3,530 and 3,860	96
Unclassified (B)	3,200	13
Unclassified (C)	2,870	1
		820
Administrative Officers:		
Class I	$5,180 to $6,230	1
Class II	4,300 to 5,180	10
Class III	3,970 to 4,630	60
		71
Administrative Assistants:		
Class I	$3,640 to $4,300	71
Class II	3,310 to 3,970	100
Class III	2,980 to 3,640	39
		210
Clerks:		
Class I, senior clerks	$2,650 to $3,310	218
Class II, junior clerks	Under $2,650	2,439
		2,657

Service, and is under the direction of the Board of Foreign Service Officers' Training School. The duties of the Board are to act in all matters concerning the functions of the school, with the approval of the Secretary of State; to select the director of the School from among the officers of the Foreign Service with the approval of the Secretary of State, and in its discretion to select other instructors from among the qualified officers of the Department of State, the Foreign Service, the executive departments of the Government, and other available sources. The Board is composed of the members of the Board of Foreign Service Personnel, the Chief of the Division of Foreign Service Personnel, and the Director of the School. The school was not operated in 1944. However, the facilities of the school during the wartime period, were utilized for the training of Foreign Service Auxiliary officers.

FOREIGN SERVICE EXAMINATION

Because of war conditions, it was found impracticable to hold a written examination during 1944 for appointments to the American Foreign Service. The Board of Examiners for the Foreign Service has not set the date of a later general examination. However, a so-called "In-Service" examination for which only members of the junior ranks of the service were eligible was held in March 1945, and in November 1945 a similar "In-Service" examination was held which was also open to members of the Armed Forces of the United States and to veterans of the Second World War. An examination open to applicants in these same categories is planned for 1946.

CHANGES IN DIPLOMATIC AND CONSULAR PERSONNEL

During 1945 representation near the Governments of Czechoslovakia, Denmark, Netherlands, Norway, Poland, and Yugoslavia was transferred from London to their respective capital cities of Praha, Copenhagen, The Hague, Oslo, Warsaw, and Belgrade.

The United States Legation at Helsinki, Finland was reopened. United States Missions, in charge of Foreign Service Officers, were established at Tirana, Albania; Sofia, Bulgaria; and Bucharest, Rumania; and United States Missions in charge of Foreign Service Officers with rank of minister were opened at Vienna, Austria, and Budapest, Hungary.

During 1945 the following consular offices were closed: Acapulco, Mexico; Adana, Turkey; Angra do Heroismo, Azores; Beira, Mozambique; Bucaramanga, Colombia; Camaguey, Cuba; Caripito, Venezuela; Cienfuegos, Cuba; Florianopolis, Brazil; Galway, Ireland; Gonaives, Haiti; Iquitos, Peru; Iskenderun, Turkey; La Paz, Mexico; Puntarenas, Costa Rica.

Consular offices were opened at the following posts: Le Havre and Lyon, France; Genoa and Milan, Italy; Amsterdam and Rotterdam, Netherlands; Patras, Greece; Rangoon, Burma; Shanghai, Tientsin, Hong Kong, Canton, Hankos, Peiping, and Tsingtao, China; Batavia, Java; Manila, Philippine Islands; Singapore, Straits Settlements.

The Foreign Service Auxiliary, which was added to the regular Foreign Service in 1942 in order to enable it to discharge its responsibilities in those phases of the war effort involving economic warfare, and political, economic, and cultural cooperation in the Western Hemisphere and among the United Nations, consisted as of Oct. 31, 1945, of 843 officers, 1,067 clerks, and 424 miscellaneous employees.

During 1945 there were 15 retirements, one death, and eight resignations of Foreign Service officers. On Dec. 31, 1945, the Service comprised 820 career officers.

PROMOTIONS FROM THE RANKS

Of a total of 36 ambassadors and 20 ministers, 19 of the former and 15 of the latter have previously served in the ranks of the Foreign Service or of the Department of State.

THE LEAGUE OF NATIONS AND ASSOCIATED AGENCIES

By Arthur Sweetser
United Nations Organization Conference

EVOLUTION OF AMERICAN INTERNATIONAL POLICY

The United States took, during 1945, the final steps in the complete reversal of the policy adopted in 1920 towards the three international agencies which grew out of the First World War: League of Nations, World Court, and International Labor Organization. The country had moved in this quarter century from the periphery to the very center of international organization. Where in previous years it had refused to join two of these three agencies, it now not only played a decisive role in their disposition but became the headquarters of the new agency of the United Nations.

Seldom in the history of nations has a reversal of policy been so complete. The United States had itself called the League of Nations into being towards the end of the First World War, had then in a post-war reversal repudiated its own creation, and had never during the succeeding two decades got beyond a kind of uneven cooperation. Its jurists had also largely contributed to the creation of the World Court which the Senate at once even partially ratified, but no full agreement had ever been reached, and the United States remained outside this world agency of law. Only as regards the International Labor Office had the United States succeeded in working out a complete policy of membership and cooperation.

The coming of the Second World War, the involvement of the United States despite all its efforts, and finally the atomic bomb, led to a complete reversal in public opinion and government policy. Far from eschewing international organization, the United States again took the lead, as it had at the end of the First World War. Conference after conference was organized on American soil, first on technical matters, such as relief and rehabilitation, food and agriculture, monetary and financial problems, and civil aviation, and eventually on the central problem of political action itself. The Congress had gone along step by step with the Executive, ratifying one great international agreement after the other, including, most important of all, the United Nations Charter by the overwhelming vote of 89 to 2. By the end of the year, the United States was playing with great completeness the role it had withdrawn from playing in 1919, and found itself in the curious position not only of having a decisive voice in what should be done about the League of Nations and other agencies of which it was not a member but of awaiting the arrival on its shores of an international commission to select the site of the world capitol.

UNO REPLACEMENT OF LEAGUE

Early in the war, three weeks indeed after America's entry, on New Year's day of 1942, the United Nations Declaration was signed in Washington, constituting a new international grouping, first of all, to fight the war but eventually to become a permanent continuing agency after the war.

This meant that the League of Nations would be replaced by a new and larger agency but left open the innumerable questions as to the obligations entrusted to the League in several hundred treaties, the mandated areas still under its supervision, the magnificent buildings at Geneva, and the remaining personnel. The American attitude was generally sympathetic in such matters, and the League was regularly invited to send representatives to cooperate in the various conferences and committees which were laying the groundwork of the new system.

SAN FRANCISCO DEVELOPMENTS

Most important of these was the San Francisco Conference. There the United States as "host government" issued such an invitation, and three League officials, the Acting Secretary-General, Sean Lester; the Treasurer, S. Jackson; and the senior director, A. Loveday, came respectively from Geneva, London, and Princeton. League experience and precedent were cited constantly throughout the conference, not least of all by the United States Delegation itself, despite its non-membership.

The Charter which grew out of the Conference was on lines very similar to the Covenant but with various readjustments owing both to the experience of the League and the differing political considerations, particularly the presence of two great states which had not shared fully in the League's experience, namely, the United States and Russia. Constant comparison has since been made between the two documents, as was natural given the fact that the Covenant provided a kind of starting-point of proved experience, but there has often been a lack of perspective in the judgments.

Most important was the Report to the President by the Chairman of the United States Delegation. While only one all-inclusive reference was made, and that a somewhat back-handed one, specific references were included in practically every chapter of the Report. The general introduction stated: "Twenty-six years before the San Francisco Conference met, the Conference at Paris, under the inspired and courageous leadership of Woodrow Wilson, wrote the Covenant of the League of Nations, which many believed would serve to keep the peace. That labour did not gain the wide support it needed to succeed."

The report then goes on to specific questions "raised in part by the experience of the League of Nations and in part by the nature of the problem of international organization as such, which occupied the Department and its committees from the beginning of its work to the end." In fact, from the initiation of the Department's studies, the League's experience had been a matter of prime study.

The basic organization accepted from the start closely followed that which had become familiar at Geneva. The Report comments on this point: "The League of Nations was organized in general along the above lines. It has its Assembly, in which all members are represented, its smaller Council, and its Secretariat. In addition, there are in the general framework of the League's system a variety of special bodies and committees of which the two most important are the International Labor Organization and the Permanent Court of International Justice."

UNO—LEAGUE COMPARISONS

Within this broad outline, however, there were various important rearrangements of function and power. "Perhaps the basic difference between the constitutional arrangement of the United Nations and that of the League of Nations," the Report states, "is that instead of the Assembly and the Council having identical functions, as was the case under the League, the General Assembly and the Security Council will each have different functions assigned to it."

The Report then goes into detail regarding the system of qualified majority voting in the Security Council, which is stated to represent, "an advance over the procedure in the Council of the League of Nations" and where "it is significant that no one seriously considered perpetuating the unanimity rule which operated in the League and in many other international bodies."

The provisions for peaceful settlement, as put forward in the Dumbarton Oaks Proposals, were described as "based upon the lessons learned over centuries and, more particularly, upon those from the experience of the League of Nations." The development of these methods was represented as "beginning with the Hague Conference of 1899 and reaching its highest mark to date in the rules and procedures of the League of Nations."

The method of enforcement, however, was very much sharpened through the creation of the Security Council and its affiliated Military Staff Committee. The former was pictured in the report as "without precedent in international relations; it differs from the traditional alliance and is unlike the Council of the League of Nations." Moreover, the binding effect of decisions of the Security Council was described as "a sharp departure from the League of Nations Covenant, in as much as each member of the League could determine for itself whether or not it would in any particular situation participate in sanctions." So also, the Charter differed from the Covenant in that the latter "did not contain any provision requiring member states to conclude agreements for the supply of forces to execute military sanctions.

Many other references to the League are contained in the report. There is special reference, for instance, to safeguarding "the continued operation" of the anti-narcotics agencies and to carrying on "the excellent work" of the League as regards the legal status of women throughout the world. There is reference, also, to the economic and financial work, to the desirability of continuing the registration of treaties which grew out of the first of President Wilson's Fourteen Points, and to the need of building up a strong Secretariat, where the League's experience is cited. Finally, two whole sections were devoted to other major League activities which were largely taken over in the Charter, namely, the Permanent Court of International Justice and the Trusteeship arrangements which were designed to replace the League's mandates system.

Apart from this official comparison, there were innumerable other less formal comparisons. Among these might be mentioned an analysis appearing in the State Department *Bulletin* by Prof. Clyde Eagleton; another, printed as a Senate document, by Prof. Herbert Wright; a questionnaire prepared by the League of Nations Association; and an article "Charter v. Covenant" by George Creel in *Collier's*. Most of the comparisons were, however, made from the viewpoint of the Charter and suffered somewhat from a shortened perspective and a failure to take into account the very differing political circumstances. The two documents were, indeed, more similar than dissimilar; there was honor enough for each without need for invidious comparison; and the real difference lay not in any constitutional rearrangements but in the basic political difference ensuring to the United Nations the support of the United States and Russia which had been denied to the League of Nations.

UNO ABSORPTION OF LEAGUE FUNCTIONS

The most important decision taken by the San Francisco Conference as regards the League was that requesting the Preparatory Commission to "formulate recommendations concerning the possible transfer of certain functions, activities, and assets of the League of Nations which it may be considered desirable for the new Organization to take over." First the Executive Committee and then the full Commission meeting in London in August and November respectively drew up detailed plans to take over the remaining League assets and functions practically "in toto," and authorized a special committee to negotiate with the League to this end.

Most dramatic of the recommendations was that foregoing Geneva as the international center and approving the United States for that honor and responsibility. Important politically were the recommendations as regards mandated areas, where it was assumed the United States would succeed Japan as trustee for the Pacific mandated islands. Of somewhat special interest was the recommendation to take over from the League assets the magnificent international research Library donated by John D. Rockefeller, which was considered essential for the working of the United Nations Organization but which would be sorely missed in Europe.

LEAGUE TECHNICAL SERVICES

Meanwhile, the technical services which had been given hospitality in the United States in 1940, when the German flood surged out over western Europe, continued the work which their presence in the United States had made possible. Most important of these was the Economic, Financial and Transit Mission at the Institute of Advanced Study in Princeton, which was shown in the annual report of the Institute's Director, Dr. Frank Aydelotte, to have grown from 13 to 37 members and to have had during its five years in the United States a wide field of publications and conferences.

The anti-narcotics group, which also had established a branch office in Washington in 1940, returned to Geneva in the spring of 1945. "The utility of the transfer to Washington," the Permanent Central Opium Board report stated, "was demonstrated later when Switzerland was surrounded by Axis belligerents and Axis-controlled countries, and postal communications were cut off or delayed and impaired by censorship for considerable periods." The more essential duties were, however, carried out, as the report adds, "in large measure due to the Vice-President, Mr. Herbert L. May, who unsparingly gave time and trouble in establishing, maintaining, and supervising the work of this branch office."

A third group, the Health Research Unit, which had later been established in Washington, became the first League unit to be transferred to the United Nations. In January, by agreement between the Acting Secretary-General of the League, Sean Lester, and the Director-General of UNRRA, Herbert H. Lehman, this group was transferred to the latter agency and became the nucleus of its Epidemiological Information Service.

PERMANENT COURT

At long last, after almost incessant efforts since 1907, the United States became a member of a World Court. At that distant date, the then Secretary of State, Elihu Root, had instructed the American Delegation to the first Hague Conference, to propose such a court, but none was actually created until the League of Nations, with Root's help, succeeded in establishing the Permanent Court of International Justice in 1921. Every President and Secretary of State, whether Republican or Democrat, from that time on, had urged American membership, but never had it been possible to secure unreserved Senate ratification, despite the presence successively on the bench of four of America's foremost jurists: John Bassett Moore, Charles Evans Hughes, Frank B. Kellogg, and Manley O. Hudson.

When the new United Nations Organization was under construction, however, a fresh start was made, and a special committee of jurists convened in Washington by the United States before the San Francisco Conference. The great question there, and at the San Francisco Conference, was whether to maintain the existing Court or create a new one, and while, as the American Delegation Report stated, there were "forceful arguments on both sides" it was finally decided to create a new court which was described "in a very real sense as 'only a revised Court,' the successor to the old." The American Delegation played a large part in the drafting of its Statute which was incorporated in, and ratified as part of, the Charter. Judge Hudson was present during the discussions as one of the representatives of the Court and was later nominated by several governments for the elections scheduled to take place at the meeting of the first Assembly in January, 1946.

AFFILIATED AGENCIES

The United States also took a leading part during the year in creating a series of specialized affiliated agencies which will take over in a very much larger way some of the special activities carried out by the League or other agencies. Particularly, the Government became a member of the United Nations Food and Agriculture Organization which will extend the work done both by League agencies at Geneva and the Institute of Agriculture at Rome, took a leading part in the creation of the United Nations Educational, Scientific and Cultural Organization which will greatly expand the League's work in intellectual cooperation, called the first conference for a United Nations Trade Organization which will follow on the lines explored by various League Conferences; and had the first national discussions in Washington for the creation of an international agency in the field of health, where the League had had some of its best successes. All this presaged an international machinery vastly more elaborate but very similar in principle to that initiated by the League.

PUBLIC OPINION

Sentiment regarding the League of Nations continued to evolve during the year, though still foreshortened somewhat by the nearness of present events and enthusiasms. Perhaps the fullest statement was that made by former Under-Secretary of State, Sumner Welles, on the 25th anniversary of the League on Jan. 10, 1945: "It has become the fashion during this past generation to decry the League of Nations, to stress its inadequacies and its weaknesses, and emphasize its failures. It has become a matter of second thought, not only to overlook the great accomplishments performed by the League during the earlier years between the wars, but even to consider it as an effort necessarily foredoomed to failure. Many of us have time and again endeavored to analyze and accurately to appraise its weaknesses. We will not fail to admit that the greatest obstacle in the way of its success was the failure of the people of the United States to take part in it. And yet as we look back, the Covenant of the League of Nations remains, and will remain, a high-water mark of constructive human endeavor."

Another expression from General George C. Marshall, may also be cited: "For centuries, man has been seeking, I believe, to extend this inherent order of the cosmos, toward which he strives, to the level of the entire planet. There are two ways in which this has been manifest: We might say one is by way of cooperation and the other by way of operation. Hitler, whether he knew it or not, sought to establish one kind of order in the world when he precipitated the recent holocaust. The League of Nations, on the other hand, sought to establish a global order by cooperation. It would appear that one or the other of these methods will prevail. Time and space have been so shrunken, that the world must, I believe, establish definite global rules. Community and national rules no longer suffice."

Finally, on practically the last day of the year, on the anniversary of Woodrow Wilson's birth (Dec. 28), the Woodrow Wilson Foundation, which had been created in 1922 by some 200,000 Americans to honor the First World War President and the founder of the League of Nations, granted two awards for distinguished service in the cause of the establishment and perpetuation of peace, the first to Henry L. Stimson, former Secretary of War, for his part in overcoming lawlessness and violence in the world and re-establishing the possibility of peace, and the second, to Sean Lester, Acting Secretary-General of the League of Nations, for his part in maintaining for the future both the spirit and the mechanism of the League throughout five years of war. Their acceptance statements, coming from opposite sides of the Atlantic and very opposite responsibilities, make a fitting, and a solemn conclusion to this year's review. In the view of Mr. Stimson, the failure of the United States to accept the principle of collective action among the nations of the world in the cause of peace "was mainly instrumental in bringing on the second World War." In the words of Mr. Lester, the catastrophe of war "could have been avoided by following Woodrow Wilson's sublimely common-sense vision . . . the peoples are now rebuilding that which they destroyed by timidity or neglect."

WAR AND POST-WAR CHRONOLOGY, 1945

JANUARY

1—Patton's Third Army beats off German attacks at Bastogne. Nazis attack Bitche heavily. American infantry mopping up Leyte. Air raids hit Japan from Kuriles to Celebes.

3—Patton drives towards St. Vith. Allied bombers strike Nazi supply dumps in the Ardennes bulge fighting. Superforts raid Honshu, main Japanese island. Liberators strike at Manila airfields.

4—First Army (Hodges) regains ground on northern flank of Belgian bulge; Seventh Army (Patch) holds Nazis in check on Bitche front. B-29 bombers raid Formosa.

5—Lieut. Gen. Sir Bernard Montgomery takes command of American First and Ninth Armies in the Ardennes salient. Nazis push U. S. Seventh Army back towards Saverne Gap. Japanese give up Burma port of Akyab. Heavy American air raids on Luzon.

6—Seventh Army turns force of Nazi attack near Bitche. Patton forced back. Nazis wage air attacks, V-2 bombs, on England.

7—First Army starts driving Nazis out of the Belgian bulge.

9—Strong American force lands on shores of Lingayen Bay, Luzon, with no man killed in the landing operations. Nazis strive to free Budapest from Russian control.

10—First Army wins fierce tank battle in the Belgian bulge. Russians break up Nazis' counter thrust at Budapest.

11—Third Army attack southeast of Bastogne wipes out half of enemy force in 11 hours.

12—Dardanelles Straits opened up to Allied ships by Turks. American troops drive deep into German lines in Italy.

13—First and Third Armies continue to squeeze Nazis out of Belgian bulge. Sixth Army (Krueger) drives steadily towards Manila.

17—Warsaw and Krakow fall to Russian attacks.

19—Nazis seek to encircle Seventh Army north of Strasbourg. Third Army drives forward on Luxembourg front.

21—Russians capture Tannenburg, heart of Prussianism. Defenses of St. Vith cracked by First Army. British drive towards industrial centers. French push 9 miles into Alsace. Tarlac, in Luzon, captured by Sixth Army. Formosa and Okinawa under heavy air attacks.

22—Allied planes smash German mobile equipment trying to escape from the bulge. Nazis recognize great danger threatening Berlin.

23—Russians reach Oder River on drive towards Berlin. House to house fighting in St. Vith. British near Roer River. B-29's bomb industrial targets in Nagoya on Honshu Island. Ledo-Burma Road opened.

24—Upper Silesia falls to Russians. First and Third Armies squeezing out Ardennes salient. Formosa, Ryuku, and Iwo Jima bombed by B-29's.

25—Sixth Army besieges Clark Field in drive to Manila.

26—Russians smash into Danzig, isolating Nazis in East Prussia. U. S. Ninth Army (Simpson) joins with British to form solid line along Roer River from Holland to Duren. Seventh Army drives Nazis back across Moder River. Americans drive Japanese into the hills after capture of Clark Field.

27—Third Army wipes out last of Ardennes bulge. American superforts start huge fires in bombing raids on Tokyo.

28—First Army drives to within 5 miles of German border near St. Vith. Third Army mops up Nazis in Luxembourg. Seventh Army jabs at Nazis in Alsace. American Ninth and British Second Armies join to drive into Ruhr Valley.

29—Nazi government officials begin to flee from Berlin. First Army approaches Siegfried Line. Americans beat off Japanese counterattacks on Luzon and seize Rosario.

30—Russians within 80 miles of Berlin. American First Army 3 miles inside Germany in Monschau Forest, breaking through Siegfried Line fortifications. Nazis begin to evacuate Holland. On Luzon, Americans capture San Fernando.

31—Hitler paints picture of woe and misery to his people. American troops make surprise landing 60 miles northeast of Manila on Subic Bay—no shot fired.

FEBRUARY

1—Russians within 39 miles of Berlin. Ranger attack frees prisoners of Bataan. Sixth Army 28 miles from Manila.

2—Thawing weather slows advance of U. S. First and Third Armies. Japanese force Americans to abandon 14th Air Force base at Suichwan. Big Three meet in Yalta (Roosevelt—Churchill—Stalin).

3—Two American forces converge on Manila.

4—First Army breaks through West Wall, southeast of Aachen. Third Army breaks into main Siegfried Line. MacArthur's forces drive into heart of Manila.

6—Russians establish 3 bridges over the Oder.

7—Third Army invades Germany on a 22-mile front, crossing Our and

Sure rivers. Japanese, as they withdraw, continue demolitions in Manila.

9—Japanese being driven out of Manila. Canadian First Army forms north jaw of pincers for penetration of Siegfried Line.

10—Germans open floodgates of Schwammenauel Dam, raising Roer River rapidly.

11—Canadians break into Kleve. Oil and ammunition dump of enemy wrecked in Burma.

12—Big Three announce plans to disarm Germany, determine Polish borders, and take other steps to forestall future wars. Third Army captures Pruem.

13—On 49th day of siege, Budapest falls to Russians.

14—In the Philippines, Americans seize Cavite naval base and 2 airfields.

15—Heavy bombing against Japanese from Tokyo to Yokohama. Many fires set.

16—Rail and oil centers blasted in western Germany.

17—Japanese report American landings at two places on Iwo Jima.

18—Third Army captures Rohrbach.

19—Admiral Nimitz reports Iwo Jima landing, with heavy loss of life.

21—Hitler's hideout, Berchtesgaden, bombed for first time by American flyers.

22—Americans driving Nazis out of the Saar Basin.

23—Main Allied drive against Berlin opens. Marines reach top of Mount Surabachi, Iwo Jima volcano.

24—Last of Japanese being driven out of Intramuros, walled city of Manila.

26—First Army pushes toward Cologne; Russian Army moves forward from Baltic bases; Third Army pushes forward 7 miles toward Coblenz.

27—Tanks and infantry of First Army stand 2½ miles from Ruhr Basin; Ninth Army drives against Ruhr war industries.

28—President Roosevelt returns from Yalta.

MARCH

1—President Roosevelt reports results of Yalta conference to the Congress. Planes bomb Ryukyu Islands.

2—Ninth Army reaches Rhine, capturing Neuss. Landing on Palawan reported.

3—Americans battle for Rhine bridges.

4—First Army within two miles of Cologne. Russians break through in Pomerania.

5—American infantry and tanks of First Army enter Cologne. Ninth Army closes in on Homberg. Seventh Army fighting into Siegfried Line near Saarbruecken. Russians start shelling Stettin.

7—Third Army driving towards Coblenz.

8—U. S. First Army crosses the Rhine at Remagen over famous Ludendorff Bridge. British enter suburbs of Mandalay. Chinese seize New Lashio to complete control of Burma Road from Burma to Kunming.

9—Presence of new American 15th Army (Gerow) is revealed on western front. Tokyo reports American landing on Mindanao.

12—Coblenz besieged. Nagoya burning for second day as result of bombing raids. MacArthur's troops capture airfield near Zamboanga.

13—Dortmund wiped out by air attack. Von Rundstedt ousted as Nazi commander on west front. Russians capture Kuestrin. Aleutian-based planes bomb Shumushu and Paramushiro.

14—Marines seal Japanese in Iwo Jima caves.

16—Nazis begin evacuation of Saarland and Palatinate.

17—Seventh Army enters outskirts of Saarbruecken. First Army on the 15th cuts Hitler's superhighway. Kobe set ablaze by air raids. Iwo Jima captured.

18—Ludendorff Bridge collapses but First Army builds a pontoon span. Russians capture Kolberg on the Baltic. MacArthur's troops invade Panay. Coblenz falls.

19—Third Army drives towards Mainz. Civilians flee from Rhine cities as Ninth Army advances.

20—Patton flanks Siegfried Line and moves towards junction with Patch, wiping out 45,000 of a Nazi garrison of 80,000. Trapped Japanese warships in Inland Sea smashed by American carrier planes. British capture Mogok in Mandalay. Allied planes raid Siam (Thailand).

22—Third and Seventh Armies mop up defeated Nazis in Saarland and Palatinate. Nazi chemical center of Ludwigshafen captured. Japanese evacuate 3,000,000 from Tokyo.

23—Gen. Zhukov's Russian Army breaks through Oder defenses to advance 7 miles toward Berlin.

24—British Second Army, American Ninth and First Allied Airborne Armies cross Rhine. Carrier planes blast Okinawa.

26—Third Army crashes into Frankfurt-am-Main. Ninth Army enters Duisburg. Seventh Army reaches Karlsruhe. German defenses crumbling all along the front. Philippine-based bombers blast Formosa. Americans invade Cebu.

27—Eisenhower reports German line smashed, predicts surrender when Allies link with Russians.

28—Himmler orders Nazi shrine of Nuremberg evacuated.

30—British drive to seal off north German ports. American Third Army moves towards junction with Russians. Seventh Army tries to seal off mountain routes in southern Germany to prevent top Nazis running for hideout. Russians move to besiege Vienna. Seventh straight day of attack against Okinawa.

APRIL

1—Infantrymen and Marines land on Okinawa.

3—Seventh Army cuts Wuerzberg-Ansbach rail line. British 21st Army Group enters Osnabrueck. Ninth Army advances toward Weser River. Russians seize Wiener Neustadt. Americans cut Okinawa in half.

4—Russians 6 miles from Vienna. Eighth Army (Eichelberger) seized Tawitawi Island, 30 miles from Borneo.

5—Russia denounces neutrality pact with Japan. American Ninth Army returned to Gen. Bradley's command.

6—Nazis retreat to Elbe River. Fifth Army moves up west coast of Italy.

7—In stubborn fighting, Marines gain 5,000 yards on Okinawa. Japanese form new Cabinet to replace one which quit on the 5th. Nazi gold hoard seized.

8—First Army takes Gottingen; Ninth Army within 128 miles of Berlin; British 64 miles from Hamburg; American Seventh Army 95 miles from Munich; Third Army 120 miles from Berlin. Russians drive into suburbs of Vienna. Marines gain use of an airstrip on Okinawa.

9—Ninth Army enters Essen, home of Krupp iron works. Allied planes blast German submarine pens at Hamburg. Fifth Army continues its advance up Italian west coast. United States recognizes Argentinian government.

10—Ninth Army enters Hanover and cuts superhighway to Berlin. Russians nearly complete mopping up of Vienna and swing toward Munich and Prague.

11—Ninth Army captures Brunswick, 90 miles from Berlin. Fifth Army within 12 miles of Le Spezia. Invasion of Jolo gives MacArthur control of Sulu Archipelago.

12—Third Army drives toward Leipzig. Nazi collapse spreads as many cities fall. British break through German Santerno River line in Italy. Progress slow on Okinawa. President Roosevelt dies at Warm Springs, Georgia. Vice-President Truman sworn in to succeed him.

13—Stalin announces complete capture of Vienna. Japanese intensify their Kamikaze (suicide) plane attacks on American combat vessels in Okinawa area. Americans land on Bohol in the Philippines. No more Japanese shipping in South Pacific sea lanes. Heavy fire bomb raids continue against Tokyo.

14—Third Army captures Beyreuth. Ring tightens around Leipzig.

15—President Roosevelt buried in grounds of his Hyde Park home.

16—Ruhr pocket of resistance practically wiped out. British and Americans join in final push to drive Nazis out of Italy. Fire raids ruin central part of Tokyo. MacArthur's forces approach Baguio, summer capital of Philippines.

17—First Army invades suburbs of Leipzig. Dresden blasted by American heavy bombers. Americans seize Ie Island, 3 miles from Okinawa. Airfields on Kyushu bombed by Superforts as well as port of Davao and Formosa.

18—Patton's Third Army enters Czechoslovakia, cutting Germany in half. Simpson's Ninth Army captures Magdeburg on Elbe, opposite Berlin. MacArthur's troops enter Baguio.

19—Leipzig captured; Nuremburg surrounded. Russians capture Seelow and Wriezen, 18 miles from Berlin. Fifth Army in Italy within 8 miles of Bologna.

20—French First Army advances toward Lake Constance. Third Army within 55 miles of junction with Russian forces.

21—Russians enter suburbs of Berlin. Third Army captures Asch in Czechoslovakia and drives for Prague and Pilsen. Fifth Army captures Bologna in Italy.

22—Russians smash into heart of Berlin, killing thousands of Nazis. Americans and Russians within 15 miles of junction southwest of Berlin. Seventh Army crosses Danube. French First Army takes Stuttgart. Russian Foreign Minister Molotov arrives in Washington, D. C., on way to San Francisco Conference.

23—Practically all retreat routes of Germans now cut. First Army takes Dessau. Canadians attack Emden. British besiege Bremen and Hamburg. Russians capture Frankfurt-on-Oder. Fifth Army reaches Po River and French Alpine troops break into Italy from the north. Japanese retake Kakazu on Okinawa.

24—Russians complete encirclement of Berlin. Patch's Seventh Army advances on Munich. Blackout ends in London. British capture Ferrara in Italy.

25—Hitler's Berchtesgaden chalet completely wrecked by bombing attack. President Truman opens San Francisco Conference with speech by radio.

26—British Second Army captures Bremen. French close in on Munich. Russians take Stettin. Rioting Italian patriots capture all main cities in northern Italy. In San Francisco Conference, Soviets demand three votes.

27—American and Russian troops join at Torgau on the Elbe River and cut the enemy in two. Patton's Third Army invades Austria, thereby cutting off Czechoslovakia. American Fifth Army within 25 miles of Milan. Mussolini a prisoner. Suicide-crazed Japanese pilot jet rockets against American ships off Okinawa. Soviets gain 3 seats in San Francisco Conference but lose their Polish demands.

28—Three Allied armies converge on Munich as Anti-Nazi troops in city revolt. All exits from Berlin blocked. American troops reach Swiss border in Alps and seal up German troops in north Italy.

29—Italians hang Mussolini in Milan square. Genoa and Milan captured by Americans; Venice by British. Seventh Army captures Munich.

30—Peace offer reported from Himmler. General Clark reports Nazi Army in Italy is broken. Davao, Formosa, Hong Kong, and Swatow under constant attacks.

II. INTERNATIONAL AFFAIRS AFFECTING THE UNITED STATES

MAY

1—Hitler reported dead and Admiral Doenitz takes command.

2—Nazis surrender in Italy and Austria. Russians raise their flag over Hitler's Chancellery in Berlin. Von Runstedt captured by American Seventh Army. Davao, last Japanese stronghold in Philippines, penetrated.

3—British occupy Hamburg. British and Russians join to cut off Norway and Denmark. British enter Rangoon in Burma campaign. Australians move on Tarakan airfield.

4—Germans in Holland, Denmark, and northwestern Germany surrender.

6—Admiral Doenitz orders submarines to cease hostilities.

7—Germany surrenders.

8—President Truman proclaims this date as V-E Day.

9—Goering taken prisoner along with Field Marshal Kesselring. Nazis sign surrender agreement in Berlin. Nazi chief agent in Norway, Quisling, imprisoned in Oslo.

10—Largest fleet to date of Superforts bomb oil depots on Honshu and strike at Shikoku Islands. Konrad Henlein and Karlkrank, Nazi agents seized. U. S. Army announces point system for discharge from military service.

11—Superforts complete job of thoroughly mining Japan's Inland Sea. MacArthur's troops drive to surround Davao. Henlein commits suicide. Russians close in on Nazi diehards in Czechoslovakia.

12—Four American divisions unite in smashing blows against Japanese on Okinawa. American soldiers who have fought in African and European campaigns are assured they will not be sent to Pacific.

13—Mitsubishi aircraft factory and other targets blasted by air raids over Nagoya.

14—After two years of campaigning, Australians take Wewak on New Guinea. U. S. planes raid Formosa.

17—Nagoya again blazing from air raids. American infantry moving toward Shuri on Okinawa.

18—United States to share occupation zone in Germany with the French.

19—Superforts raid Tokyo and Hamamatsu. Japanese abandon Foochow on Chinese coast. American Fifteenth Army takes control of Rhine, Saar, and part of Ruhr Valley.

20—Americans begin encirclement of Shuri on Okinawa.

21—Yugoslavs pull out of Carinthia and Styria in Austria; still hold Trieste.

23—Churchill resigns but heads interim cabinet until new elections shall have been held. Arabs in Palestine stage a general strike, supporting Syrians and Lebanese. Russia demands 16 seats in United Nations organization.

24—Tokyo again set afire by raids. Japs on Okinawa caught in pincers at Shuri. Himmler, Nazi Gestapo chief, commits suicide.

25—Chinese take main Japanese base of Hwaiyuanchen in Kwangsi.

26—Tokyo again fired by bombing.

27—MacArthur's planes strike at Japanese in Dutch East Indies. French troops warring with Lebanese and Syrians. Chinese recapture Yunning, key to Japanese supply line.

29—B-29's raid Yokohama. British tell French to withdraw their troops from Levant area.

30—Marines enter Shuri Castle in southern Okinawa. Krueger's Sixth Army smashes Japanese line near Manila.

31—Chiang resigns as Premier of China; succeeded by T. V. Soong. United States supports British in orders given British troops to end strife between the French and the Arabs.

JUNE

1—Superforts blast Osaka. MacArthur quickens action on Borneo.

2—Japanese main line of defense on Okinawa obliterated. Japanese resist stubbornly on Mindanao.

U. S. Forces enter Norway in the interests of law and order.

3—American forces trap Japanese on Chinen Peninsula on Okinawa. MacArthur's troops wiping out Japanese on Mindanao.

5—Governments of United States, Great Britain, Russia, and France agree to whittle Germany down to her Dec. 31, 1937 size. Fire bombs dropped on Kobe. After five years of exile, King Haakon returns to Norway. Twenty-one U. S. warships damaged by typhoon near the Ryukyus.

6—Chinese recapture former American air base at Liuchow.

8—Japanese remaining on Okinawa hemmed in by flame thrower and grenade attacks. Huge fleet of carrier planes sent by Admiral Halsey against southern end of Kywsho.

9—Australians land on Labuan Island in Borneo area. Chinese reach Indo-China border by breaking through Japanese lines. Halsey's planes hit at Japanese naval base at Kanoya. Nearly 2,000,000 homeless by reason of raids on Tokyo.

11—American battleships shell Okinawa to aid land attack. Australians land on northwestern Borneo. MacArthur's forces gaining ground on Luzon.

12—American landings on southern Okinawa trap remaining Japanese on island. Many Japanese destroyed in caves ruined by demolition bombs. Americans advancing on Brunei, capital of north Borneo. Chinese capture port of Pingyang.

14—Encircled Japanese launch desperate counterattacks on Okinawa. American Third and Seventh Armies selected as occupation forces for Germany.

15—Osaka severely bombed in effort to wipe it out. Australians capture Brunei. Allied planes attack oil fields at Balikpapan on Borneo. American task force shells Kurile Islands twice in 24 hours. Von Ribbentrop, German Foreign Minister, captured.

16—Airfields on Borneo being rapidly captured by Australians.

17—Many Japanese industrial cities bombed in effort to wipe out small factories. Japanese bases on Formosa bombed.

18—MacArthur drives forward in northern Luzon. General Eisenhower greeted by cheering thousands in Washington, D. C. General Buckner killed in front line fighting on Okinawa.

19—Japanese suicide plane sinks U. S. destroyer *Emmons*. Australians cut Japanese food supply line on Bougainville. Bombing raid of B-29's practically destroys Shizuoka.

20—MacArthur 100 miles from northern tip of Luzon; Chinese close in on airfield at Liuchow. DeGaulle asks that British help to end Levantine strife.

21—Okinawa falls. General Stilwell succeeds General Buckner in command of Tenth Army. U. S. destroyer *Abele* sunk by suicide plane. Brunei Bay harbor entrances entirely controlled by Australians. Italians drag 30 Fascists from jail and kill them.

22—Superforts hammer at Kure arsenal. Filipino guerrillas get behind Japanese positions in northern Luzon and block their retreat. Baruch advises destruction of all German industry as a guarantee of future peace.

23—Navy states that Japanese suicide planes operating at Okinawa cost U. S. 10 vessels sunk and 52 damaged. Chief of Staff Gen. Marshall shows plan to blast Japan with 1000-plane B-29 raids daily. Rocket-firing planes add to success of American raids in Tokyo area. Liuchow airfield burned by retreating Japanese.

24—Australians drive southward on Borneo to capture Miri oil fields. Chinese rolling up Japanese on coast in direction of Shanghai.

25—Americans begin to use captured Okinawa airfields as base from which to bomb Kyushu, base of Japanese suicide bombers. On Mindanao, Japanese forces split and under heavy pressure on both sides. Cities on Formosa practically wiped out. Belgian Communists oppose King Leopold remaining on the throne.

26—B-29's attack munitions factories on Honshu. United Nations Charter signed in San Francisco.

27—Bombing concentration on aviation gasoline refinery at Yokohama. At home, Stettinius resigns as Secretary of State to become American representative on United Nations Peace Council.

28—American task force in North Pacific sinks most of Japanese convoy in Okhotsk Sea, between Kamchatka and the Siberian mainland. U. S. carrier *Bunker Hill* seriously damaged by enemy bombing. American losses in Okinawa campaign tentatively set at 46,319 (of whom 11,897 were listed as killed or missing) and 33 ships sunk—60 damaged.

29—Japan plans to move its industries to Manchukuo but is hampered in every move by attacks of American ships and planes. Sasebo shipbuilding yards fired by Superfort raid. For the first time since 1942, the American fleet sails the Makassar Straits, between Borneo and the Celebes. Chinese capture main airfield at Liuchow. Senator Vandenberg, Michigan, asks Senate to accept San Francisco Charter.

30—Tarakan oil fields now being used by Allies.

JULY

1—Huge force of B-29's drop fire bombs on Kure naval base, on Shimonoseki, an important port, Ube, a mineral center, and Kumamoto, industrial center. Formosa and Japanese installations on Java also bombed. Australians make beach landing near Balikpapan, practically without casualties.

2—United States submarines sink 10 more enemy ships. President Truman urges ratification of San Francisco Charter.

3—American raids on Formosa wipe out alcohol industry, important to production of synthetic gasoline. Tanks of U. S. Army enter Berlin as first American unit of occupation forces.

4—Shikoku and Kobe bombed. Japanese report to date that nearly 5,000,000 are killed, injured, or homeless as a result of American bombing of five main cities—Tokyo, Yokohama, Nagoya, Osaka, and Kobe.

5—General Spaatz, former director of the air campaign against Germany, put in charge of all air forces in the Pacific. MacArthur states that Philippines are now completely rewon.

6—American 5th Air Force moves up to Okinawa base from the Philippines to join in attacks on Japan. Borneo refineries set on fire by fleeing Japanese. Australians mopping up Balikpapan area. Chinese recapture 3 more Kiangsi centers.

7—B-29 raid over Honshu Island obliterates Japan's largest aluminum producing center as well as her greatest oil refineries. Japanese retreat in the Balikpapan area becomes a nightmare of horror as they are attacked by the Australians in front and by head-hunting Dyaks from the jungles in rear.

8—Two more Japanese homeland airfields wrecked. French move into Saar Basin to begin occupation duties. Tito accuses Greeks of seeking to provoke a fight by firing across Yugoslav border.

9—American planes raid Omura naval base and airfields at Kyoto, Ozaka, Kobe, and Toyhashi. Chinese clear Japanese out of Kwangsi Province. Naval vessels and planes support Australians in driving Japs from Balikpapan area.

10—Heaviest carrier-borne raid to date smashes 80 Japanese airfields in Tokyo area. Raid carried on for many hours, American planes shuttling back and forth from close-in carriers to Tokyo area.

Included in this tremendous mobile, striking force, greatest known to history, were the battleships *Iowa, Massachusetts, Indiana,* and *South Dakota* and the carriers *Essex, Lexington, Independence,* and *San Jacinto.*

11—Australians complete capture of Balikpapan. Chinese recapture Sincheng.

12—American planes break up attempt of Japanese to run a convoy from Malay to the home islands. Planes from 2 British carriers raid Sabang Island, near Sumatra.

13—British Navy and planes attacking Nicobar Islands and Sumatra airfields.

14—Admiral Halsey's fleet, from 10 miles offshore, shells the industrial city of Kamaishi on Honshu Island. Steel mills and coke ovens wiped out by this bold raid. Hokkaido set ablaze by 1,000 plane, carrier-based raid. General Chennault, famed commander of the Flying Tigers, resigns from Army. Australians moving up to Sambodja oil fields.

15—Halsey's fleet bombards Muroran, industrial port on Hokkaido, and leaves its steel mills and factories a mass of ruins. Superforts destroy oil refinery at Kudamatsu. Chinese recapture airbase at Kanshien. British capture key city of Myikyo in Burma. President Truman and Prime Minister Churchill arrive in Potsdam, Germany, for Big Three Conference.

16—Round-the-clock bombing of Japanese cities continues. Big Three meeting at Potsdam delayed by non-arrival of Premier Stalin.

17—Task force from U. S. 3d Fleet, with battleship *Iowa* in the lead, goes in close to shore and hammers shell industry city of Hatachi, only 80 miles from Tokyo. Line of firing ships only 6 miles offshore. No resistance by enemy. Elsewhere American planes strike countless targets, aiming at arsenals, aircraft and armament centers, tool and machinery centers, and transportation hubs. Chinese capture Moncay on Indo-China border. Stalin arrives in Potsdam, and Big Three talks begin.

18—Japanese cities under ceaseless bombing attacks.

19—Japanese hold rally in Tokyo under title of "Society for Bombing America." Chinese drive Japanese out of Indo-China.

20—Shanghai gets its heaviest B-29 raid. Australians capture Sambodja on Borneo. U. S. House of Representatives passes bill for expanded funds for Export-Import Bank (increase of $2,800,000,000). Bretton Woods monetary plan bill also passed.

21—Chinese closing in on Kweilin on three sides. Italy receives $100,000,000 in Lend-Lease goods. Japanese try to break out of Burma trap. Allied planes hammer Japanese from Indo-China to Honshu.

22—Trial of Marshal Pétain starts.

23—MacArthur estimates Japanese shipping loss in past 14 days at 791 and plane loss at 596. American 6th Division captures Japanese stronghold in northern Luzon.

24—Kure naval base, Nagoya, Osaka, Paramushiro, Chichi Jima bombed heavily.

25—Halsey's 3d Fleet bombards Kanagawa, east side of Tokyo Bay. Oil refineries at Mitsubishi, Hayama, and Asaishi bombed by Superforts. Chinese crash into Yangso.

26—Churchill's party in England defeated 2 to 1 in general elections. Attlee succeeds Churchill as Prime Minister. Japanese chemical centers destroyed. Namyung captured by Chinese. Big Three ultimatum calls upon Japan to surrender or face complete destruction.

27—Tokyo refuses surrender demand, whereupon American 20th Air Force furnishes Japanese Government with list of the next 11 cities to be bombed.

28—With destruction of Japanese battleship *Hyuga* all of their battleships can now be classed as either sunk or damaged.

29—Halsey's fleet sinks Japanese battleship *Haruna*. Six of the cities listed by 20th Air Force blasted by heavy raids.

30—Japanese airfields from Kyushu to Tokyo hit by continuous bombing by carrier-based British and American planes.

31—Laval surrenders to Americans in Austria. General Le May, 20th Air Force, adds 8 more Japanese cities to the list of those destined for destruction.

AUGUST

1—Big Three and Potsdam Conference. U. S. Army furloughs 4,000 for work on railroads in connection with redeployment problem. Laval taken back to France for trial.

2—Wake Island bombed. Big Three release to the press the results of Potsdam Conference.

3—Complete blockade of Japan achieved by means of mines dropped from planes.

4—MacArthur announces that mighty invasion force is being organized.

6—Japanese city Hiroshima detroyed by one atomic bomb dropped from an American plane.

7—Superforts smash naval arsenal at Toyokawa.

8—Russia declares war on Japan.

9—Second atomic bomb dropped on Nagasaki.

10—Tokyo broadcasts offer to surrender. Lacking official confirmation, fighting continues.

12—False radio flash starts celebration. Report denied in two minutes. Russians enter Korea and seize Japanese naval base at Rashin. Russians also drive into Manchuria.

13—Japanese report receipt of surrender note.

14—President Truman, at 7 p.m., announces that Japanese have accepted Allied surrender demand. General MacArthur placed in full command of situation to negotiate the terms and to govern Japan through the throne.

15—Gasoline and fuel oil rationing ended in United States.

17—MacArthur, tired of stalling tactics, abruptly orders Japanese to send their peace envoys to Manila without delay.

18—Chinese enter Canton and make arrangements to accept surrender of all south China Japanese. Japanese on Bougainville surrender to Australians. Japanese continue to fight Russians in Manchuria.

19—Japanese envoys confer in Manila. General Wainwright and several hundred other U. S. prisoners set free from Japanese prison camp in China.

20—Emperor's representatives leave Manila to carry terms back to Tokyo.

22—MacArthur reports that terms will be signed in Tokyo area Aug. 31.

25—Typhoons in Japanese area delay signing surrender terms—schedule moved forward to Sept. 2, instead of Aug. 31.

26—MacArthur issues instructions for American occupation of Kagoshima area. Russians formally recognize Generalissimo Chiang Kai-shek's government as supreme in China. General De Gaulle, on a visit to the United States, laid a wreath on President Roosevelt's grave.

27—Japanese troops surrender by thousands daily. Transport planes start to land technical troops at Atsugi in preparation for the surrender ceremonies. Minesweepers clear a path through Uraga Strait. President Truman indicates need for draft in the 18-25 year group for some time to come. Navy announced plans to reduce its personnel in the next 12 months by 2,900,000.

28—Navy patrol for Tokyo area to consist of the 3d Fleet, 5th Fleet, 7th Fleet, and North Pacific Force. In the Kuriles, Russians occupy Shimushiru, Uruppu, and Otorofu. U. S. Army announces plans to cut from present strength of 8,050,000 to 2,500,000 by next July.

29—Troops of 11th Airborne Division begin to arrive at Atsugi in 2-minute intervals. President Truman released to the public the findings of the Pearl Harbor Army and Navy inquiry boards.

30—MacArthur sets up temporary headquarters in New Grand Hotel in Yokohama. American Eighth Army due to arrive tomorrow. French ask for loan of $1,000,000,000.

31—Eighth Army begins to land at Yokohama. Death penalty demanded in trial of Quisling.

SEPTEMBER

1—Admiral Nimitz authorized to take the surrender of Japanese troops in the Ryukyus, Bonins, and the mandated islands; MacArthur to handle those in Japan's home islands, south Korea, and the Philippines.

2—General Yamashita, "Tiger of Malaya," surrendered. Under the command of General MacArthur, surrender terms signed aboard the U. S. *Missouri* in Tokyo Bay.

5—Congress reconvenes. Navy wants to hold 9 major bases in the Pacific and 6 in the Atlantic. Merger into a single department of National Defense is sought for Army, Navy, and Air Forces.

6—Ex-Nazi leaders being rooted out and arrested by the thousands. Promises given American people that most of the rationing program will be abandoned this year.

7—American troops entered Tokyo and raised the Stars and Stripes over General MacArthur's headquarters in the American Embassy.

8—Troops of American 7th Infantry Division land in Korea. Chinese to receive surrender of 1,000,000 Japanese at Nanking today.

9—General MacArthur announces that Japanese will be allowed to govern themselves as long as they and the Emperor obey orders. Navy asks Congress for 1,079 ships.

10—Koreans protest retention of Japanese officials in administrative positions. General Wainwright given great reception in Washington, D. C.; awarded the Congressional Medal of Honor.

11—Koreans assured that Japanese officials will be ousted as soon as competent Koreans can be developed to do the jobs.

14—In retaliation for unauthorized strikes, Ford Motor Co. shut down temporarily.

16—Yugoslavia serves notice that she will present a demand to the Foreign Ministers' Council for allocation to her of Trieste, Fiume, and other Italian territory.

17—American 6th Armored Division returned to United States and demobilized.

18—Secretary of War Stimson resigned and Under-Secretary Robert P. Patterson named to succeed him.

20—General Marshall tells Congressional delegation that points-for-discharge are due for early and drastic reduction.

23—Auto workers preparing to take a strike vote.

24—Socialists gain in local elections in France. Great Britain and the United States signed a new oil agreement.

25—If Hungary holds free elections, she will be recognized by the United States. MacArthur thinks that Japan will be occupied for many years but with a small force. President Truman asks Congress to cut $28,692,772,000 from the Army budget. New York elevator operators strike spreads.

26—Hirohito became the first Japanese Emperor to visit a foreign conqueror when he called on General MacArthur.

27—Foreign Economic Administration abolished.

28—British rush troops to Java where some Indonesians had revolted; other troops were sent to Indo-

China where Annamese were rioting. U. S. strike situation still bad.

30—American troops seize 21 Japanese banks in 7 cities.

OCTOBER

1—President Truman orders reorganization of the Navy. Secretary of Treasury Vinson recommends $5,000,000,000 tax cut. Secretary of Labor Schwellenbach asks oil field strikers to go back to work.

2—First peace parley after Second World War, the Foreign Ministers Council, ended in failure after being in session 22 days. Seemingly no common meeting ground of interests of Great Britain, United States, and Russia. General Truscott takes over General Patton's Third Army Command; General Patton takes over Fifteenth Army command.

3—Street fighting breaks out in Kunming between troops of Chungking government and those of General Lungyuh, former governor of Yunnan Province. President Truman favors outlawing use of atomic bomb. Under Presidential order, Government seizes struck oil properties. Longshoremen strike in New York.

4—General MacArthur orders dismissal of Home Minister Yamazaki and abrogates all laws limiting freedom of speech, religion, and opinion. Also abolishes secret police who formerly enforced such laws. Japanese Cabinet quits. Surabaya, Bandung, and other principal cities of Java in hands of Indonesian nationalists. U. S. House of Representatives votes sizable tax reduction, also votes favorably for President Truman's plan to reorganize executive agencies. Navy ordered to operate oil companies seized under Presidential order.

5—Navy announced that its losses during the war totaled 699 vessels of all types. Telephone operators out from 2 to 4 p.m. Oil production resumed in 15 states. Ford Motor Co. announced resumption of automobile production.

6—Navy reduces points to speed demobilization of its personnel.

8—President Truman states that no other nation would share with the United States, Great Britain, and Canada the secret of the atomic bomb. Coal miners and longshoremen strikes still not settled.

9—Pierre Laval sentenced to death.

10—Secretary of State Byrnes invites 9 nations to send delegates to Washington on Oct. 23 to form a Far Eastern Advisory Commission to study matters not concerned with military affairs or territorial adjustments. President Truman appeals for end of industrial strife.

11—General MacArthur directs Japanese Premier to write a bill of rights into Japan's constitution to give women suffrage, encourage unionization of labor, liberalize education, substitute justice for inquisition, and thoroughly democratize Japan's economic institutions.

12—General Eisenhower announces that not a single Nazi will be allowed to vote in German elections.

13—Indonesians issue a proclamation declaring war on Netherlanders and all their allies.

14—Japanese General Staff Headquarters dissolved. Allies take over Batavia and decree death for looting, sabotage, and carrying of arms—a very definite answer to the Indonesian Party declaration of war. Arab-Jewish situation in Palestine still unsettled.

15—Pierre Laval executed. Tried to commit suicide by poisoning. General MacArthur announces that Japan's demobilization is complete. New York longshoremen strike no nearer settlement.

16—Netherlands offers Dominion status to Indonesia. First break in longshoremen strike as several thousand go back to work. In Greece, Archbishop Damaskinos resolved the political crisis temporarily by assuming the premiership. Secretary of War Patterson asks Congress to sponsor a single department of national defense. John L. Lewis, in a surprise move, calls off the soft coal strike.

18—Indonesians threaten war for years to come unless given their freedom. On the 18th day, longshoremen's strike is ended.

20—Bitter fighting in Venezuela between revolutionists and those loyal to the President. Argentina forms a new Cabinet satisfactory to Colonel Peron. Plans made for beginning of Japanese atrocity trials. Indonese appeal to President Truman.

21—British troops restore order in Bandung and Semarang in Java. Revolutionists depose President Medina in Venezuela.

22—A new bill of rights was decreed by Allied Control Commission for all Germans, regardless of race, religion, or political belief. Taxes raised sharply in an attempt to curb inflation.

23—De Gaulle plans unity government in France, following a general election which strengthened his party. President Truman urges Congress to provide military training for all males, sometime between the ages of 17 and 20, makes a sharp distinction between this training and conscription. Admiral King and Secretary of Navy Forrestal oppose a single department of national defense.

24—United Nations Charter became part of the law of nations when the 29th country, Russia, ratified, this date. General MacArthur orders Japan to recall all diplomatic representatives and turn over embassy and consular property to the Allies. General Motors employees vote on authorizing a strike if their demand for 30 per cent wage increase is denied.

25—Indonesians seek parley with Netherland officials. New regime in Venezuela recognized by Paraguay, Ecuador, and Cuba. Result of General Motors employee vote was 6 to 1 for strike.

26—Japan votes its War and Navy offices out of existence. Terrorism spreads in Batavia.

28—Communist party in Chungking states that undeclared civil war is going on in at least 11 provinces in north China. Indonesians fire on British Indian troops at the Surabaya naval base.

29—Getulio Vargas resigns as President of Brazil and is succeeded by Supreme Court Justice José Linhares. General Marshall cautions the nation against too rapid cutting of military forces. Automobiles declared off rationing. United Steel Workers Union files strikes notices covering 769 plants and 750,000 workers.

30—Indonesian mob kills British General A. W. Mallaby while he was trying to halt a fight in Surabaya. United States recognizes new Venezuelan Government.

31—General Eisenhower warns of unrest in Germany as a result of occupational government. Japanese navy units either sunk or parcelled out to the United States, Great Britain, China, and Russia.

NOVEMBER

1—Attempts to build up Prince Konoye as liberal leader in Japan were stopped by General MacArthur. Outbreaks in Palestine resulted in 6 deaths, brought rail traffic to a standstill, and damaged shipping and industry. New government set up in Greece under Unionist Party leader, Panayotis Canellopoulis. Senate completes Congressional action upon tax reduction bill.

2—Anti-Zionist demonstrators in Cairo stone Jews and Jewish property. China plans to reorganize its army along American lines. Korea demands freedom. Indonesian riots break out again. Provisional government of Hungary recognized by the United States. U. S. Navy plans to complete demobilization by Sept. 1, 1946.

3—Armed with Japanese arms, 100,-

000 Indonesian rioters gather in central Java.

6—Foreign Commissar Molotov declares that there should be no secrecy about atomic bomb. Pearl Harbor investigation committee in Congress runs into difficulty over destruction of records.

8—United States and 13 other countries meet in Paris to determine the respective percentages of German reparations from the war zone of occupation. Indonesians ordered to surrender arms by morning of the 9th or face the force of all military arms under command of General Monsergh, Allied Commander.

10—President Truman, Prime Minister Attlee, and Prime Minister King of Canada begin discussions in Washington, D. C. as to atomic bomb, loan to Britain, and other world affairs. Chinese civil war intensified. Following Indonesian rejection of British ultimatum, British troops bomb Surabaya.

11—Uprisings feared in occupied Germany because of cold and hunger.

13—Prime Minister Attlee addresses the American Congress. Destruction of German war industries begins in Bavaria. DeGaulle unanimously elected President of the French Government.

15—New rioting breaks out in Tel Aviv area.

16—President DeGaulle submits his resignation because of inability to form a cohesive Cabinet. Food riots break out in 4 Japanese villages. Discharge points lowered by War Department.

17—Tito calls upon King Peter to renounce throne in Yugoslavia. No present end to Indonesian troubles. Strike of automobile workers imminent.

18—Rebellion breaks out in Iran. Russian newspapers accuse world reactionaries of using the atomic bomb as a weapon of power politics against Russia. Communists in France withdraw their support from DeGaulle. British take Semarang in Java fighting.

19—Chinese Nationalists capture 2 cities in their drive from Shanhaikwan to Manchuria. Fierce fighting in Surabaya. Despite Communist defection, DeGaulle will be able to form a union government.

20—Premier Canellopoulos resigns in Greece; aged liberal leader, Sophoulis asked to form a new government. Pitched battles raging in Indonesian revolt area. General Motors strike of 350,000 workers is ordered. In their conference at Washington, D. C., labor and management unable to agree over issues of collective bargaining and jurisdictional disputes. General Eisenhower appointed Army Chief of Staff and Admiral Nimitz Chief of Naval operations.

21—Chinese Nationalists pouring into Manchuria. Indonesian troops withdrawing from Batavia. De Gaulle completes formation of new Cabinet. Regent Damaskinos quits in Greece and Cabinet of Sophoulis takes over. General Motors strike 96 per cent effective. Washington, D. C. transit operators stage their second strike in 13 days whereupon President Truman orders the Government to take over and operate the facilities.

22—Japanese troops operating under British command against Javanese independence units—little hope for immediate peace.

23—Indian rioters in Calcutta damage an American hospital and U. S. officers and men are casualties from the native rioting. New violence breaks out in center of Java. All rationing of foodstuffs, except sugar, ends. General Motors rejects arbitration offer.

24—Brutality mounts in Java. Rioting continues in Bombay, India.

25—British persuade Damaskinos to remain as Greek regent. Further disturbances in Tel Aviv area over arrest of Jewish immigrants landing illegally. Russia demands participation with China in Manchurian economy. President Truman's labor-management conference in Washington, D. C., fails to produce agreement on any point after 3 weeks of discussion.

26—Washington sends note to Russia suggesting withdrawal of all foreign troops from Iran by Jan. 1, 1946. Moscow asks discussion of Palestine problem by the Big Five. General Motors rejects union's proposal to resume negotiations.

27—Major General Patrick Hurley abruptly resigns as Ambassador to China and issues a severe denunciation of career diplomats whom he said were sabotaging America's proclaimed foreign policy. President Truman immediately appointed General George C. Marshall as his special envoy to China.

28—Indonese request a truce to which British answer with warning that all native troops in the north half of the city of Batavia would be shot on sight after noon on Thursday, the 29th. Immediate demand for investigation of General Hurley's charges against career diplomats. Steel workers vote overwhelmingly for a strike call.

29—King Peter of Yugoslavia displaced and the monarchy abolished; a new government established known as Federal People's Republic of Yugoslavia. President Truman withdraws his support from a Senate resolution for establishing a Jewish Commonwealth in Palestine. After 19 days of fighting, Surabaya in complete control of British.

30—Italian Foreign Minister de Gasperi named as Premier of Italy. Communist Army of 200,000 strikes into Shantung Province. Labor-Management Conference in Washington, D. C., ends its 25 days of meeting without any outstanding or concrete results.

DECEMBER

1—General Hurley refuses to appear before closed session of the Senate Foreign Relations Committee—demands an end to secrecy on Administration's policy in China. U. S. Army bomber circled the world, 24,589 mile flight in 96 hours and 50 minutes flying time.

2—Pearl Harbor investigators demand all records be made available for their inspection. American industry making definite progress in rehiring veterans as they leave military service; 2,934 companies pledge to take back their old employees and, in addition, to hire more veterans for new jobs created.

3—About 550,000 now idle in 145 labor disputes, five of which constitute major strikes.

4—Army takes definite stand to support President's desire to have youth of the country undergoing military training at some period between 17 and 20 years of age. Desperate housing conditions throughout the nation being brought to attention of Congress, with particular reference to the damaging effect of these conditions upon the families of returning veterans.

8—The *Mixmaster*, XB-42 plane flew from Long Branch, California, to Washington, D. C. in 5 hours, 17 minutes; an average speed of 432 m.p.h., for the 2,295-mile trip.

9—Gen. Patton seriously injured in auto accident in Germany.

10—Dean Acheson, Under-Secretary of State, denied Gen. Hurley's charges that he had "wrecked" American policy in Iran.

11—B-29 Superfortress *Dreamboat* broke all non-stop records from west to east coast of United States—5 hours, 27 minutes, 8 seconds; 2,464 miles flown at an average speed of 450 miles an hour.

12—James F. Byrnes, Secretary of State, left for Moscow to attend conference on world problems with Molotoff of the Soviet, and Bevin of Great Britain.

14—William D. Mitchell, chief of counsel to the Congressional

Pearl Harbor Committee, announced that he and his staff were withdrawing from the investigation.

16—*Mixmaster* plane crashed near Oxon Hill, Maryland, just outside of Washington, D. C. Prince Fumimaro Konoye, three times Premier of Japan, committed suicide.

17—First United States court in Japan met to try war criminals accused of beating or killing Allied prisoners in Japanese detention stockades.

18—U. S. Supreme Court grants Japanese Lieut. Gen. Tomoyuki Yamashita a stay of execution.

19—Selective Service ends draft and induction of fathers.

21—General Patton died in Heidelberg, Germany.

22—General George C. Marshall reached Chungking as President Truman's envoy for conference with Generalissimo Chiang Kai-shek. U. S. recognizes new Republic of Yugoslavia.

24—General Patton buried in American military cemetery at Hamm.

PERIODICAL PUBLICATIONS

American Journal of International Law
700 Jackson Place N.W., Washington, D. C.

Current History
65 Fifth Ave., New York City.

Foreign Affairs
45 East 65th Street, New York City.

Foreign Policy Bulletin
22 East 38th Street, New York City.

Foreign Policy Reports
22 East 38th Street, New York City.

International Conciliation
405 West 117th Street, New York City.

Pacific Affairs
1 East 54th Street, New York City.

Pan-American Union Bulletin
Pan-American Union, Washington, D. C.

Time Weekly Newsmagazine (The)
9 Rockefeller Plaza, New York City.

United States Bulletin
State Department, Washington, D. C.

World Affairs
734 Jackson Place, Washington, D. C.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

ACADEMY OF POLITICAL SCIENCE, Fayerweather Hall, Columbia University, New York City.

AMERICAN ACADEMY OF POLITICAL AND SOCIAL SCIENCE, 3457 Walnut St., Philadelphia, Pa.

AMERICAN ARBITRATION ASSOCIATION, 9 Rockefeller Plaza, New York City.

AMERICAN PEACE SOCIETY, 734 Jackson Place, Washington, D. C.

AMERICAN POLITICAL SCIENCE ASSOCIATION, 105 Harris Hall, Northwestern University, Evanston, Ill.

AMERICAN SOCIETY OF INTERNATIONAL LAW, 700 Jackson Place, N.W., Washington, D. C.

CARNEGIE ENDOWMENT FOR INTERNATIONAL PEACE, 700 Jackson Place, N.W., Washington, D. C.

COUNCIL ON FOREIGN RELATIONS, INC., 45 East 65th Street, New York City.

COUNCIL ON WORLD AFFAIRS, Society for Savings Building, Cleveland, O.

FOREIGN POLICY ASSN., 22 East 38th Street, New York City.

INTERNATIONAL REFORM FEDERATION, 134 B St., N.E., Washington, D. C.

League of Nations Assn., Inc., 8 West 40th St., New York City.

National Council for Prevention of War, 532 17th St., N.W., Washington, D. C.

People's Lobby, Inc., 1410 H Street, N.W., Washington, D. C.

Women's International League for Peace and Freedom, U. S. Section, 1734 F Street, N.W., Washington, D. C.

World Peace Foundation, 40 Mount Vernon St., Boston, Mass.

REGIONAL

American Asiatic Assn., 1 Hanover Square, New York City.

China Society of America, 570 Lexington Ave., New York City.

Committee on Corporation in Latin America, 156 Fifth Ave., New York City.

English-Speaking Union, 19 E. 54th Street, New York City.

Far East Conference, 11 Broadway, New York City.

French Institute in the United States, 22 East 60th St., New York City.

Netherland-America Foundation Inc., 10 Rockefeller Plaza, New York City.

Panamerica Society, Inc., The, 67 Broad St., New York City.

Pan-Pacific Union, Inc., 1023 Alakea St., Honolulu, Hawaii.

PART TWO

AMERICAN GOVERNMENT

DIVISION III

THE NATIONAL GOVERNMENT

FEDERAL ADMINISTRATIVE ORGANIZATION

By William M. Schuyler
Editor, *The American Year Book*

THE PRESIDENT AND VICE PRESIDENT

President.—Harry S. Truman of Missouri (Democrat). Sworn into office as President of the United States, April 12, 1945, in succession to Franklin Delano Roosevelt, deceased on that date.

Vice President.—Vacant.

Executive Office of the President.—

White House Office—Matthew J. Connelly (Massachusetts) Charles G. Ross (Missouri), and William D. Hasset (Vermont), Secretaries.

Special Assistant to the President—Vacant

Bureau of the Budget—Harold D. Smith, Director.

Civilian Production Administration—J. D. Small, Administrator.

Board of War Communications—Paul A. Porter, Chairman.

Committee on Fair Employment Practice—Malcolm Ross, Chairman.

Office of Alien Property Custodian—James E. Markham, Custodian.

Office of Inter-American Affairs—Francis A. Jamieson, Coordinator.

Office of Defense Transportation—J. M. Johnson, Director.

Economic Stabilization Board—Chester Bowles, Administrator and Chairman.

Office of War Mobilization and Reconversion—John W. Snyder, Director.

Office of Price Administration—Paul A. Porter, Administrator.

Office of Scientific Research and Development—Dr. Vannevar Bush.

Petroleum Administration for War—Julius A. Krug, Administrator.

Office of Contract Settlement—Robert H. Hinckley, Director.

Surplus Property Administration—W. Stuart Symington, Administrator.

President's War Relief Control Board—Joseph E. Davies, Chairman.

Selective Service System—Major Gen. Lewis B. Hershey, Director.

Smaller War Plants Corporation—Maury Maverick, Chairman.

War Contracts Price Adjustment Board—Col. Maurice Hirsch, Chairman.

United Nations Relief and Rehabilitation Administration—Herbert H. Lehman, Director General.

War Shipping Administration—Captain Granville Conway, Acting Administrator.

Presidential Vacancy.—By Act of Congress, in the case of vacancy occurring in the office of President through the death or removal of both the President and Vice President, the Cabinet Officers succeed to the Presidency in the order indicated in the arrangement of the following summary of the executive departments:

DEPARTMENT OF STATE

Secretary of State.—James F. Byrnes.

Under Secretary of State.—Dean Acheson.

Assistant Secretary of State for European, Far Eastern, Near Eastern, and African Affairs.—James C. Dunn.

Assistant Secretary of State for Congressional Relations.—Vacant.

Assistant Secretary of State for Economic Affairs.—William L. Clayton.

Assistant Secretary of State for American Republic Affairs.—Spruille Braden.

Assistant Secretary of State for Public and Cultural Relations.—William Benton.

Assistant Secretary of State for Administration.—Donald S. Russell.

Legal Adviser.—Green H. Hackworth.

Special Assistants to the Secretary of State.—

International Organization and Security Affairs, Leo Pasvolsky; Press Relations, Michael J. McDermott; Protocol, George T. Summerlin; Research and Intelligence, Alfred McCormack; Special Assistant to the Secretary and Foreign Liquidation Commissioner, Thomas B. McCabe.

Special Assistant to the Secretary, Walter Brown, Special Assistant to the Secretary of State, Joseph W. Ballantine.

Assistants to the Secretary of State.—Charles E. Bohlen, R. Borden Reams, Blanche R. Halla, Carlton Savage, and Cassie Connor.

Consultant to the Secretary of State.—Robert Woods Bliss.

Advisers to the Secretary of State.—

Arms and Munitions Control, Joseph C. Green; Petroleum Policy, Charles B. Rayner; Caribbean Affairs, Charles W. Taussig.

Special Advisers to the Secretary of State.—Isaiah Bowman and Henry P. Fletcher.

Directors of Offices.—

European Affairs, H. Freeman Matthews.

Far Eastern Affairs, John Carter Vincent.

Near Eastern and African Affairs, Loy W. Henderson.

American Republic Affairs, Ellis O. Briggs.

Special Political Affairs, Alger Hiss.

International Trade Policy, Clair Wilcox.

Financial and Development Policy, John Stam Hooker.

Economic Security Policy, Seymour J. Rubin.

International Information and Cultural Affairs, William T. Stone.

Transport and Communications Policy, George P. Baker.

Public Affairs, Francis H. Russell, Acting.

Foreign Service, Selden Chapin.

Departmental Administration, Frank A. March, Acting.

Controls, Frederick B. Lyon, Acting.

DEPARTMENT OF THE TREASURY

Secretary of the Treasury.—Fred M. Vinson.

Charged with the management of the national finances; prepares plans for the improvement of the revenue and support of the public credit; superintends collection of the moneys paid from and into the Treasury; controls construction of public buildings, coinage and printing of money, *ex officio* chairman of the Federal Reserve Board.

Under Secretary of the Treasury.—Daniel W. Bell.

Assistant Secretary in Charge of Monetary Research and Foreign Funds Control.—Harry D. White.

Assistant Secretary in Charge of Customs, Narcotics, and Secret Service.—Vacant.

Fiscal Assistant Secretary in

Charge of the Finances, Accounts, Public Debt, and Treasurer.—Edward F. Bartelt.

Director of Personnel.—Theodore F. Wilson.

Director of Public Relations.—Charles P. Shaeffer.

Assistants to the Secretary.—John W. Pehle, Theodore R. Gamble, Roy Blough, Ansel F. Luxford, Joseph E. Du Bois, J. H. Randolph Feltus, Paul L. Kelley, and Wilbur R. Lester.

Administrative Assistant to the Secretary.—Paul L. Kelley.

Technical Assistant.—William W. Parsons.

Budget Officer.—Charles R. Schoeneman.

Chief Clerk.—F. A. Birgfeld.

Commissioner of the Public Debt Service.—William S. Broughton.

Commissioner of Accounts.—Robert W. Maxwell.

Director of Foreign Funds Control.—Orvis A. Schmidt.

General Counsel. — Joseph J. O'Connell.

Chiefs of Divisions.—

War Finance—Theodore R. Gamble, National Director.
Monetary Research, Frank Coe.
Tax Research—Roy Blough.
Research and Statistics—George C. Haas.
Secret Service—Frank J. Wilson.
Procurement—Clifton E. Mack.
Chief Disbursing Officer—Emmett J. Brennan.

Comptroller of the Currency.—Preston Delano.

Has supervision of the national banks, their examination and reports; preparation and issue of national bank circulation; redemption and destruction of national bank notes. *Ex officio* member of the Federal Reserve Board.

Treasurer of the United States.—William A. Julian.

Charged with the receipts and disbursement of all public moneys deposited in the Treasury and Sub-Treasuries and in national banks depositories.

Commissioner of the Bureau of Customs.—W. R. Johnson.

Commissioner of the Bureau of Internal Revenue.—Joseph D. Nunan, Jr.

Charged with general supervision of the collection of all internal revenue taxes, including the income tax, and the enforcement of internal revenue laws.

Director of the Bureau of the Mint.—Nellie Tayloe Ross.

Has general supervision of the mints and assay offices.

Commissioner of Narcotics.—H. J. Anslinger.

Director of the Bureau of Engraving and Printing.—Alvin W. Hall.

Produces all the securities and similar work of the Government printed from steel plates.

Custom House.—Franklin A. M. Shafer, Deputy Collector in Charge.

Committee on Practice.—G. C. Hanna, Chairman.

Tax Legislative Counsel.—Robert W. Wales.

DEPARTMENT OF WAR

Secretary of War.—Robert P. Patterson.

Under Secretary of War.—Kenneth C. Royall.

Assistant Secretary of War.—Howard C. Petersen.

Assistant Secretary of War for Air.—Vacant.

Administrative Assistant and Chief Clerk.—John W. Martyn.

Special Assistants to the Secretary of War.—William S. Gaud and Col. Tracy S. Voorhees.

Clerk to the Secretary of War.—John W. Schott.

War Department General Staff.—General of the Army Dwight D. Eisenhower, Chief of Staff; Gen. Thomas T. Handy, Deputy Chief of Staff.

Commanding General, Army Ground Forces.—Gen. Jacob L. Devers.

The Adjutant General.—Major General Edward F. Witsell.

The Inspector General.—Lieut. Gen. Daniel I. Sultan.

The Judge Advocate General.—Major Gen. Thomas H. Green.

The Quartermaster General.—Major Gen. Edmund B. Gregory.

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Surgeon General.—Major Gen. N. T. Kirk.

Chief of Engineers.—Lieut. Gen. R. A. Wheeler.

Chief of Ordnance.—Lieut. General L. H. Campbell.

Chief Signal Officer.—Major General H. C. Ingles.

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Commanding General, Army Service Forces.—Lieut. Gen. LeRoy Lutes.

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Chief of the Chemical Warfare Service.—Major Gen. Alden H. Waitt.

Chief of Transportation.—Major Gen. Edmund H. Leavey.

Provost Marshal General.—Brig. Gen. Blackshear M. Bryan.

The Army War College.—Colonel William N. Todd, Jr., Acting Commandant.

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Attorney General.—Tom C. Clark. Represents the United States in all legal matters.

Solicitor General.—J. Howard McGrath.

Assistant to the Attorney General.—James P. McGranery.

Assistant Attorneys General.—Samuel O. Clark, Jr., John F. Sonnett, Wendell Berge, Herbert Wechsler, Theron Lamar Caudle.

Assistant Attorney General, Division of Customs.—Paul P. Rao.

Immigration and Naturalization Service.—Ugo Carusi, Commissioner.

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Director of the Bureau of Prisons.—James V. Bennett.

Federal Prison Industries, Inc.—Sanford Bates, President.

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Administrative Assistant.—S. A. Andretta.

Chief Clerk.—Harvey C. Donaldson.

Chief of the Division of Records.—Armando di Girolamo.

Chief of the Division of Supplies and Printing.—Archibald C. Keegin.

Librarian.—Matthew A. McKavitt.

Pardon Attorney.—Daniel M. Lyons.

Board of Parole.—Arthur D. Wood, T. Webber Wilson, Edward P. Reidy.

Board of Immigration Appeals.—Thomas G. Finucane.

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Second Assistant Postmaster General.—Gael Sullivan.

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Solicitor.—Vincent M. Miles.

Chief Post Office Inspector.—James J. Doran.

Superintendent of Air Mail Service.—Robert S. Burgess.

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Under Secretary of the Navy.—Vacant.

Assistant Secretary of the Navy.—H. Struve Hensel.

Assistant Secretary of the Navy for Air.—John L. Sullivan.

Special Assistants to the Secretary of the Navy.—Major Mathias F. Correa, Eugene S. Duffield, Rear Admiral Lewis L. Strauss.

Budget Officer.—Rear Admiral Ezra G. Allen.

Commander in Chief, United States Fleet, and Chief of Naval Operations.—Fleet Admiral Chester W. Nimitz.

Coast Guard.—Admiral Joseph F. Farley, Commandant.

Chief of Naval Personnel.—Vice Admiral Louis E. Denfeld.

Chief of the Bureau of Yards and Docks.—Rear Admiral John J. Manning.

Chief of the Bureau of Ordnance.—Rear Admiral G. F. Hussey.

Chief of the Bureau of Ships.—Rear Admiral Edward L. Cochrane.

Chief of the Bureau of Supplies and Accounts.—Rear Admiral W. J. Carter, Paymaster General of the Navy.

Chief of the Bureau of Medicine and Surgery.—Rear Admiral Ross T. McIntire, Surgeon General.

Chief of the Bureau of Aeronautics.—Rear Admiral Harold B. Sallada.

Judge Advocate General.—Rear Admiral O. S. Colclough.

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President of the Naval Examining Board.—Rear Admiral David M. Le Breton.

President of the Naval Retiring Board.—Rear Admiral Benjamin H. Dorsey.

Naval Dispensary.—Commodore Richard A. Warner, Medical Corps.

Navy Yard, Washington, D. C.—Rear Admiral F. L. Reichmuth, Commandant.

Naval Air Station.—Capt. George A. Seitz.

Naval Medical Center.—Rear Admiral William Chambers, commanding officer.

Naval Medical School.—Capt. Herbert L. Pugh.

Naval Dental School.—Capt. Clemens V. Rault, commanding officer.

Naval Hospital.—Capt. Robert E. Duncan.

Naval Medical Research Institute.—Captain Erik G. Hakansson, commanding officer.

President of the Board for Examination of Medical Officers.—Rear Admiral William Chambers.

President of the Board of Examination of Dental Officers.—Rear Admiral William Chambers.

Headquarters Marine Corps.—General Alexander A. Vandegrift, Commandant.

Naval Examining Board (Marine Corps).—Col. Selden B. Kennedy, President.

Marine Barracks.—Colonel Donald J. Kendall, commanding.

DEPARTMENT OF THE INTERIOR

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Charged with pensions, public lands, Indian Affairs, geological surveys, reclamation of arid lands, and mines.

Under Secretary.—Abe Fortas.

Assistant Secretaries.—Michael W. Strauss and Oscar L. Chapman.

Special Assistant to the Secretary.—William H. McCrillis.

Assistants to the Secretary.—Wesley C. Clark, May B. Conley.

Assistant to the Secretary in Charge of Land Utilization.—Lee Muck.

Chief Clerk.—Floyd E. Dotson.

Solicitor.—Warner W. Gardner.

Commissioner of the General Land Office.—Fred W. Johnson.

Fish and Wildlife Service.—Ira N. Gabrielson, Director.

Commissioner of the Office of Indian Affairs.—William A. Brophy.

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Director of the Geological Survey.—William Embry Wrather.

Commissioner of the Bureau of Reclamation.—Harry W. Bashore.

Director of the National Park Service.—Newton B. Drury.

Director of the Bureau of Mines.—R. R. Sayers.

Division of Territories and Island Possessions.—Edwin G. Arnold, Director.

Territorial Officials.—
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Hawaii—Ingram M. Stainback, Governor.
Virgin Islands—William Henry Hastie, Governor.
Puerto Rico—Rexford G. Tugwell, Governor.

Puerto Rico Reconstruction Administration.—Edwin G. Arnold, Administrator.

The Alaska Railroad.—Col. John P. Johnson, General Manager.

Petroleum Conservation Division.—Edward B. Swanson, Acting Director.

Solid Fuels Administration for War.—Julius A. Krug, Administrator.

War Relocation Authority.—Dillon S. Myer, Director.

Director of Grazing.—Clarence L. Forsling.

Division of Power.—Arthur E. Goldschmidt, Director.

National Power Policy Committee.—Julius A. Krug, Chairman.

DEPARTMENT OF AGRICULTURE

Secretary of Agriculture.—Clinton P. Anderson.

Under Secretary.—J. B. Hutson.

Assistant Secretary.—Charles F. Brannan.

Assistants to the Secretary.—Nathan Koenig, William A. Minor, Lawrence Myers.

Office of Marketing Services.—Clarence W. Kitchen, Director.

Director of Extension Service.—Milburn L. Wilson.

Agricultural Research Administration.—P. V. Cardon, Administrator.

Director of Personnel.—T. Roy Reid.

Director of Information.—Keith Himebaugh.

Director of Finance and Budget Officer.—W. A. Jump.

Office of Plant and Operations.—Arthur B. Thatcher, Chief.

Solicitor.—Robert H. Shields.

Librarian.—Ralph R. Shaw.

Office of Experiment Stations.—James T. Jardine, Chief.

Office of Foreign Agricultural Relations.—Leslie A. Wheeler, Director.

Bureau of Animal Industry.—B. T. Simms, Chief.

Bureau of Dairy Industry.—O. E. Reed, Chief.

Bureau of Plant Industry, Soils and Agricultural Engineering.—R. M. Salter, Chief.

Production and Marketing Administration.—J. B. Hutson, Administrator.

Forest Service.—L. F. Watts, Chief.

Bureau of Agricultural and Industrial Chemistry.—O. E. May, Chief.

Bureau of Agricultural Economics.—Howard R. Tolley, Chief.

Bureau of Entomology and Plant Quarantine.—P. N. Annand, Chief.

Bureau of Human Nutrition and Home Economics.—Hazel K. Stiebeling, Chief.

Commodity Credit Corporation.—Frank Hancock, President.

Soil Conservation Service.—H. H. Bennett, Chief.

Farm Security Administration.—Dillar W. Lasseter, Administrator.

Farm Credit Administration.—I. W. Duggan, Governor.

Office of Materials and Facilities.—Frederic B. Northrup, Director.

Federal Farm Mortgage Corporation.—I. W. Duggan, Chairman.

Federal Crop Insurance Corporation.—Ernest R. Duke, Chairman.

Agricultural Adjustment Agency.—Norris E. Dodd, Chief.

Rural Electrification Administration.—Claude R. Wickard, Administrator.

DEPARTMENT OF COMMERCE

Secretary of Commerce.—Henry A. Wallace.

Under Secretary.—Alfred Schindler.

Assistant Secretary.—William A. M. Burden.

Assistants to the Secretary.—George M. Reynolds, Philip M. Hauser.

Executive Assistant to the Secretary.—Bernard L. Gladieux.

Solicitor.—Harold H. Young.

Director of the Bureau of The Census.—James C. Capt.

Civil Aeronautics Administration.—Theodore P. Wright, Administrator.

Civil Aeronautics Board.—L. Welch Pogue, Chairman.

Director of the Bureau of Foreign and Domestic Commerce.—Amos E. Taylor.

Director of the National Bureau of Standards.—E. U. Condon.

Director of the Coast and Geodetic Survey.—Rear Admiral L. O. Colbert.

Commissioner of the Patent Office.—Casper W. Ooms.

Inland Waterways Corporation.—John S. Powell, Acting President-Chairman.

Weather Bureau.—Francis W. Reichelderfer, Chief.

National Inventors' Council.—Charles F. Kettering, Chairman.

Office of International Trade Operations.—Arthur Paul, Director.

DEPARTMENT OF LABOR

Secretary of Labor.—Lewis B. Schwellenbach.

Charged with the duty of fostering, promoting, and developing the welfare of the wage earners of the United States and also working towards a solution of labor problems.

The Assistant Secretary.—Daniel W. Tracy.

Second Assistant Secretary.—Edward C. Moran, Jr.

Special Assistants to the Secretary.—John W. Gibson, Albert Abrahamson.

Solicitor.—William S. Tyson, Acting.

Chief Clerk and Budget Officer.—James E. Dodson.

Director of Information.—Leslie Eichel.

Director of Conciliation.—Edgar L. Warren.

Director of Labor Standards.—Verne A. Zimmer.

Commissioner of Labor Statistics.—Isador Lubin.

Chief of the Children's Bureau.—Katharine F. Lenroot.

Director of the Women's Bureau.—Frieda S. Miller.

Wage and Hour and Public Contracts Division.—L. Metcalfe Walling, Administrator.

National War Labor Board.—Lloyd K. Garrison, Chairman.

Apprentice Training Service.—William F. Patterson, Director.

United States Employment Service.—Robert C. Goodwin, Director.

Retraining and Reemployment Administration.—Major Gen. Graves B. Erskine.

MISCELLANEOUS EXECUTIVE SERVICES

Civil Service Commission.—Harry B. Mitchell, President; Mrs. Lucille F. McMillin, Arthur S. Flemming.

Interstate Commerce Commission.—John L. Rogers, Chairman; J. Haden Alldredge, Clyde B. Aitchison, Claude R. Porter, William E. Lee, Charles D. Mahaffie, Walter M. W. Splawn, Carroll Miller, William J. Patterson, J. Monroe Johnson, George M. Barnard.

United States Employees' Compensation Commission.—Mrs. Jewell W. Swofford, Chairman; Albert H. Ladner, Jr. and Hattie W. Caraway.

Federal Reserve Board.—Marriner S. Eccles, Chairman; Ronald Ramson, Vice Chairman; M. S. Szymczak, John K. McKee, Ernest G. Draper, and Rudolph M. Evans.

Export-Import Bank of Washington.—Wayne C. Taylor, President.

Federal Trade Commission.—William A. Ayres, Chairman; Garland S. Ferguson, Ewin L. Davis, Lowell B. Mason, Robert E. Freer; Otis B. Johnson, Secretary.

United States Tariff Commission.—Oscar B. Ryder, Chairman; Lynn R. Edminster, Vice Chairman; Edgar B. Brossard, E. Dana Durand, George McGill; Sidney Morgan, Secretary.

National Housing Agency.—John B. Blandford, Jr., Administrator.

Federal Housing Administration.—Raymond M. Foley, Commissioner.

Federal Home Loan Bank Administration.—John H. Fahey, Commissioner.

Federal Public Housing Authority.—Philip M. Klutznick, Commissioner.

Federal Power Commission.—Leland Olds, Chairman; Nelson Lee Smith, Vice Chairman; Claude L. Draper, Richard Sachse, Harrington Wimberly.

Federal Communications Commission.—Charles E. Denny, Jr., Acting Chairman.

Veterans' Administration.—Brig. General Omar N. Bradley, Administrator.

United States Joint Chiefs of Staff.—Brig. Gen. Andrew J. McFarland, Secretary.

The Joint Economy Board.—Jarvis Butler, Secretary.

United States Maritime Commission.—Edward Macauley, Acting Chairman.

National Munitions Control Board.—Joseph C. Green, Executive Secretary.

Governor of the Panama Canal.—Major Gen. Joseph C. Mehaffey.

National Labor Relations Board.—H. A. Millis, Chairman.

National Advisory Committee for Aeronautics.—Dr. Jerome C. Hunsaker, Chairman.

The Commission of Fine Arts.—Gilmore D. Clarke, Chairman.

National Mediation Board.—H. H. Schwartz, Chairman.

National Capital Park and Planning Commission.—Gen. U. S. Grant 3rd, Chairman.

Smithsonian Institution.—

Established 1846 under the terms of the will of James Smithson for the "increase and diffusion of knowledge among men." The former aim is accomplished by the promoting of original, scientific research, and the latter by publications and lectures. The affairs of the institution are managed by a Board of Regents which cooperates with the Government and with National scientific bodies. Under the direction of the Institution are the National Museum, charged with preserving and utilizing objects of art and ethnological, geological, and mineralogical collections belonging to the United States; Bureau of American Ethnology, National Gallery of Art, Freer Gallery of Art, National Zoological Park, Astrophysical Observatory, and the Regional Bureau for the United States International Catalogue of Scientific Literatures.

Secretary, Alexander Wetmore.

National Gallery of Art.—Samuel H. Kress, President; Huntington Cairns, Secretary-Treasurer.

National Academy of Sciences.—Frank B. Jewett, President; Luther P. Eisenhart, Vice President; Fred. E. Wright, Home Secretary; Detlev W. Bronk, Foreign Secretary.

Pan American Union.—L. S. Rowe, Director General.

Pan American Sanitary Bureau.—Surgeon Gen. Hugh S. Cumming, Director.

American National Red Cross.—Basil O'Connor, Chairman.

Permanent Joint Board on Defense.—F. H. La Guardia, Chairman.

Federal Loan Agency.—Charles B. Henderson, Acting Administrator.

Securities and Exchange Commission.—Ganson Purcell, Chairman.

Tennessee Valley Authority.—David E. Lilienthal, Chairman; Harcourt A. Morgan, James P. Pope.

Federal Deposit Insurance Corporation.—Maple T. Harl, Chairman.

National Labor Relations Board.—Paul M. Herzog, Chairman.

Railroad Retirement Board.—Murray W. Latimer, Chairman.

The National Archives.—Solon J. Buck, Archivist.

Federal Security Agency.—Watson B. Miller, Administrator.

- Social Security Board—Arthur J. Altmeyer, Chairman.
- Public Health Service—Thomas Parran, Surgeon General.
- U. S. Office of Education—John W. Studebaker, Commissioner.
- Federal Advisory Board for Vocational Education—Paul H. Nystrom, Chairman.
- Office of Vocational Rehabilitation—Michael J. Shortley, Director.
- Food and Drug Administration—Paul B. Dunbar, Commissioner.

Federal Works Agency.—Major Gen. Philip B. Fleming, Administrator.

Public Roads Administration—

Thomas H. MacDonald, Commissioner.

Public Buildings Administration—W. E. Reynolds, Commissioner.

Federal Fire Council—W. E. Reynolds, Chairman.

Bureau of Community Facilities—George H. Field, Commissioner.

MEMBERS OF THE SENATE

COMPILED FROM THE CONGRESSIONAL DIRECTORY, YEAR, 1946

Dates show beginning of service in the Senate. Names of Republicans are in Roman type; those of Democrats in *Italics;* American Labor in ROMAN CAPS; Progressive in small caps.

ALABAMA

John H. Bankhead, 2d (1930).
Lister Hill (1938).

ARIZONA

Carl Hayden (1926).
Ernest W. McFarland (1940).

ARKANSAS

John L. McClellan (1942).
J. William Fulbright (1944).

CALIFORNIA

Sheridan Downey (1938).
William F. Knowland (1945).

COLORADO

Edwin C. Johnson (1936).
Eugene D. Millikin (1941).

CONNECTICUT

Brien McMahon (1944).
Thomas C. Hart (1945).

DELAWARE

James M. Tunnell (1940).
C. Douglass Buck (1942).

FLORIDA

Charles O. Andrews (1936).
Claude Pepper (1936).

GEORGIA

Walter F. George (1922).
Richard B. Russell (1933).

IDAHO

Glen H. Taylor (1944).
Charles C. Gossett (1945).

ILLINOIS

Scott W. Lucas (1938).
C. Wayland Brooks (1940).

INDIANA

Raymond E. Willis (1940).
Homer E. Capehart (1944).

IOWA

George A. Wilson (1942).
Bourke B. Hickenlooper (1944).

KANSAS

Arthur Capper (1918).
Clyde M. Reed (1938).

KENTUCKY

Alben W. Barkley (1927).
William A. Stanfill (1945).

LOUISIANA

John H. Overton (1932).
Allen J. Ellender (1936).

MAINE

Wallace H. White, Jr. (1930).
Owen Brewster (1940).

MARYLAND

Millard E. Tydings (1926).
George L. Radcliffe (1934).

MASSACHUSETTS

David I. Walsh (1926).
Leverett Saltonstall (1944).

MICHIGAN

Arthur H. Vandenberg (1928).
Homer Ferguson (1942).

MINNESOTA

Henrik Shipstead (1922).
Joseph H. Ball (1940).

MISSISSIPPI

Theodore G. Bilbo (1934).
James O. Eastland (1941).

MISSOURI

Forrest C. Donnell (1944).
Frank P. Briggs (1945).

MONTANA

Burton K. Wheeler (1922).
James E. Murray (1934).

NEBRASKA

Hugh Butler (1941).
Kenneth S. Wherry (1942).

NEVADA

Patrick A. McCarran (1932).
Edward P. Carville (1945).

NEW HAMPSHIRE

Styles Bridges (1936).
Charles W. Tobey (1938).

NEW JERSEY

Albert W. Hawkes (1942).
H. Alexander Smith (1944).

NEW MEXICO

Carl A. Hatch (1934).
Dennis Chavez (1935).

NEW YORK

Robert F. Wagner (1927).
James M. Mead (1938).

NORTH CAROLINA

Josiah W. Bailey (1930).
Clyde R. Hoey (1944).

NORTH DAKOTA

William Langer (1940).
Milton R. Young (1945).

OHIO

Robert A. Taft (1938).
James W. Huffman (1945).

OKLAHOMA

Elmer Thomas (1926).
E. H. Moore (1942).

OREGON

Guy Cordon (1944).
Wayne L. Morse (1944).

PENNSYLVANIA

Joseph F. Guffey (1935).
Francis J. Myers (1944).

RHODE ISLAND

Peter G. Gerry (1916).
Theodore F. Green (1936).

SOUTH CAROLINA

Burnet R. Maybank (1941).
Olin D. Johnston (1944).

SOUTH DAKOTA

Chan Gurney (1938).
Harlan J. Bushfield (1942).

TENNESSEE

Kenneth McKellar (1916).
Tom Stewart (1938).

TEXAS

Tom Connally (1928).
W. Lee O'Daniel (1941).

UTAH

Elbert D. Thomas (1932).
Abe Murdock (1940).

MEMBERS OF THE HOUSE OF REPRESENTATIVES

VERMONT

Warren R. Austin (1931).
George D. Aiken (1940).

VIRGINIA

Carter Glass (1920).
Harry F. Byrd (1933).

WASHINGTON

Warren G. Magnuson (1944).
Hugh B. Mitchell (1945).

WEST VIRGINIA

Harley M. Kilgore (1940).
Chapman Revercomb (1942).

WISCONSIN

ROBERT M. LA FOLLETTE, JR. (1925).
Alexander Wiley (1938).

WYOMING

Joseph C. O'Mahoney (1933).
Edward V. Robertson (1942).

MEMBERS OF THE HOUSE OF REPRESENTATIVES

COMPILED FROM THE CONGRESSIONAL DIRECTORY, YEAR, 1946

Dates show beginning of service in the House. Names of Republicans are in Roman type; those of Democrats in *Italics;* American Labor in ROMAN CAPS; Progressive in SMALL CAPS.

ALABAMA

1. *Frank W. Boykin* (1935).
2. *George M. Grant* (1938).
3. *George W. Andrews* (1944).
4. *Sam Hobbs* (1935).
5. *Albert Rains* (1944).
6. *Pete Jarman* (1936).
7. *Carter Manasco* (1941).
8. *John J. Sparkman* (1936).
9. *Luther Patrick* (1944).

ARIZONA

At Large—*John R. Murdock* (1936).
Richard F. Harless (1943).

ARKANSAS

1. *E. C. Gathings* (1938).
2. *Wilbur D. Mills* (1938).
3. *James W. Trimble* (1944).
4. *Fadjo Cravens* (1939).
5. *Brooks Hays* (1943).
6. *W. F. Norrell* (1938).
7. *Oren Harris* (1940).

CALIFORNIA

1. *Clarence F. Lea* (1917).
2. *Clair Engle* (1944).
3. J. Leroy Johnson (1943).
4. *Franck R. Havenner* (1944).
5. Richard J. Welch (1925).
6. *George P. Miller* (1944).
7. *John H. Tolan* (1935).
8. Jack Z. Anderson (1938).
9. Bertrand W. Gearhart (1935).
10. *Alfred J. Elliott* (1937).
11. *George E. Outland* (1943).
12. *Jerry Voorhis* (1936).
13. *Ned R. Healy* (1944).
14. *Helen Gahagan Douglas* (1944).
15. Gordon L. McDonough (1944).
16. *Ellis E. Patterson* (1944).
17. *Cecil R. King* (1943).
18. *Clyde Doyle* (1944).
19. *Chet Holifield* (1943).
20. Carl Hinshaw (1943).
21. *Harry R. Sheppard* (1936).
22. John Phillips (1943).
23. *Ed. V. Izac* (1936).

COLORADO

1. Dean M. Gillespie (1944).
2. William S. Hill (1940).
3. J. Edgar Chenoweth (1940).
4. Robert F. Rockwell (1941).

CONNECTICUT

At Large—*Joseph F. Ryter* (1944).

1. *Herman P. Kopplemann* (1944).
2. *Chase G. Woodhouse* (1944).
3. *James P. Geelan* (1944).
4. Clare Boothe Luce (1943).
5. Joseph E. Talbot (1943).

DELAWARE

At Large—*Philip A. Traynor* (1944).

FLORIDA

1. *J. Hardin Petersen* (1933).
2. *Emory H. Price* (1943).
3. *Robert L. F. Sikes* (1940).
4. *Pat Cannon* (1938).
5. *Joe Hendricks* (1936).
6. *Dwight L. Rogers* (1944).

GEORGIA

1. *Hugh Peterson* (1935).
2. *E. E. Cox* (1925).
3. *Stephen Pace* (1936).
4. *A. Sidney Camp* (1939).
5. Vacant
6. *Carl Vinson* (1914).
7. *Malcolm C. Tarver* (1927).
8. *John S. Gibson* (1940).
9. *John S. Wood* (1944).
10. *Paul Brown* (1933).

IDAHO

1. *Compton I. White* (1933).
2. Henry C. Dworshak (1938).

ILLINOIS

At Large—*Emily Taft Douglas* (1944).

1. *William L. Dawson* (1943).
2. *William A. Rowan* (1943).
3. *Edward A. Kelley* (1944).
4. *Martin Gorski* (1943).
5. *Adolph J. Sabath* (1907).
6. *Thomas J. O'Brien* (1943).
7. *William W. Link* (1944).
8. *Thomas S. Gordon* (1943).
9. *Alexander J. Resa* (1944).
10. Ralph E. Church (1943).
11. Chauncey W. Reed (1935).
12. Noah M. Mason (1936).
13. Leo E. Allen (1933).
14. Anton J. Johnson (1938).
15. Robert B. Chiperfield (1938).
16. Everett M. Dirksen (1933).
17. Leslie C. Arends (1935).
18. Jessie Sumner (1938).
19. Rolla C. McMillen (1944).
20. Sid Simpson (1943).
21. Evan Howell (1940).
22. *Melvin Price* (1944).
23. Charles W. Vursell (1943).
24. Roy Clippinger (1945).
25. C. W. (Runt) Bishop (1940)

INDIANA

1. *Ray J. Madden* (1943).
2. Charles A. Halleck (1935).
3. Robert A. Grant (1938).
4. George W. Gillie (1938).
5. Forest A. Harness (1938).
6. Noble J. Johnson (1938).
7. Gerald W. Landis (1938).
8. Charles M. La Follette (1943).
9. Earl Wilson (1940).
10. Raymond S. Springer (1938).
11. *Louis Ludlow* (1929).

IOWA

1. Thomas E. Martin (1938).
2. H. O. Talle (1938).
3. John W. Gwynne (1935).
4. Karl M. Le Compte (1938).
5. Paul Cunningham (1940).
6. James I. Dolliver (1944).
7. Ben F. Jensen (1938).
8. Charles B. Hoeven (1943).

KANSAS

1. Albert M. Cole (1944).
2. Errett P. Scrivner (1943).
3. Thomas D. Winter (1938).
4. Edward H. Rees (1936).
5. Clifford R. Hope (1926).
6. Frank Carlson (1935).

KENTUCKY

1. *Noble J. Gregory* (1936).
2. *Earle C. Clements* (1944).
3. *Emmet O'Neal* (1935).
4. *Frank L. Chelf* (1944).
5. *Brent Spence* (1931).
6. *Virgil Chapman* (1931).
7. *Andrew J. May* (1931).
8. *Joe B. Bates* (1938).
9. John M. Robsion (1935).

LOUISIANA

1. *F. Edward Hébert* (1940).
2. *Paul H. Maloney* (1943).
3. *James Domengeaux* (1940).
4. *Overton Brooks* (1936).
5. *Charles E. McKenzie* (1943).
6. *James H. Morrison* (1943).
7. *Henry D. Larcade, Jr.* (1943).
8. *A. Leonard Allen* (1936).

MAINE

1. Robert Hale (1943).
2. Margaret Chase Smith (1940).
3. Frank Fellows (1940).

MARYLAND

1. *Dudley G. Roe* (1944).
2. *H. Streett Baldwin* (1943).
3. *Thomas D'Alesandro, Jr.* (1938).
4. *George H. Fallon* (1944).
5. *Lansdale G. Sasscer* (1939).
6. J. Glenn Beall (1943).

MASSACHUSETTS

1. John W. Heselton (1944).
2. Charles R. Clason (1936).
3. *Philip J. Philbin* (1943).
4. Pehr G. Holmes (1931).
5. Edith N. Rogers (1925).
6. George J. Bates (1936).
7. *Thomas J. Lane* (1943).
8. Angier L. Goodwin (1943).
9. Charles L. Gifford (1922).
10. Christian A. Herter (1943).
11. *James M. Curley* (1943).
12. *J. W. McCormack* (1928).
13. R. B. Wigglesworth (1928).
14. J. W. Martin, Jr. (1925).

MICHIGAN

1. *George G. Sadowski* (1943).
2. Earl C. Michener (1935).
3. Paul W. Shafer (1936).
4. Clare E. Hoffman (1935).
5. Bartel J. Jonkman (1940).
6. William W. Blackney (1938).
7. Jesse P. Wolcott (1931).
8. Fred L. Crawford (1935).
9. Albert J. Engel (1935).
10. Roy O. Woodruff (1921).
11. Fred Bradley (1938).
12. *Frank E. Hook* (1944).
13. *George D. O'Brien* (1940).
14. *Louis C. Rabaut* (1935).
15. *John D. Dingell* (1933).
16. *John Lesinski* (1933).
17. George A. Dondero (1933).

MINNESOTA

1. August H. Andresen (1935).
2. Joseph P. O'Hara (1940).
3. *William J. Gallagher* (1944).
4. *Frank T. Starkey* (1944).
5. Walter H. Judd (1943).
6. Harold Knutson (1917).
7. H. Carl Andersen (1938).
8. William A. Pittenger (1938).
9. Harold C. Hagen (1943).

MISSISSIPPI

1. *John E. Rankin* (1921).
2. *Jamie L. Whitten* (1941).
3. *W. M. Whittington* (1925).
4. *Thomas G. Abernethy* (1943).
5. *Arthur Winstead* (1943).
6. *William M. Colmer* (1933).
7. *Dan R. McGehee* (1935).

MISSOURI

1. Wat Arnold (1943).
2. Max Schwabe (1943).
3. William C. Cole (1943).
4. *C. Jasper Bell* (1935).
5. *Roger C. Slaughter* (1943).
6. Marion T. Bennett (1944).
7. Dewey Short (1935).
8. *A. S. J. Carnahan* (1944).
9. *Clarence Cannon* (1923).
10. *Orville Zimmerman* (1935).
11. *John B. Sullivan* (1944).
12. Walter C. Ploeser (1940).
13. *John J. Cochran* (1927).

MONTANA

1. *Mike Mansfield* (1943).
2. Wesley A. D'Ewart (1945).

NEBRASKA

1. Carl T. Curtis (1943).
2. Howard H. Buffett (1943).
3. Karl Stefan (1935).
4. A. L. Miller (1943).

NEVADA

At Large—*Berkeley L. Bunker* (1944).

NEW HAMPSHIRE

1. Chester E. Merrow (1943).
2. Sherman Adams (1944).

NEW JERSEY

1. C. A. Wolverton (1926).
2. T. Millet Hand (1944).
3. James C. Auchincloss (1943).
4. D. Lane Powers (1933).
5. Charles A. Eaton (1925).
6. Clifford P. Case (1944).
7. J. Parnell Thomas (1936).
8. Gordon Canfield (1940).
9. Harry L. Towe (1943).
10. F. A. Hartley, Jr. (1929).
11. Frank L. Sundstrom (1943).
12. Robert W. Kean (1938).
13. *Mary T. Norton* (1925).
14. *Edward J. Hart* (1935).

NEW MEXICO

At Large—Vacant
Antonio M. Fernandez (1943).

NEW YORK

1. Edgar A. Sharp (1944).
2. Leonard W. Hall (1938).
3. Henry J. Latham (1944).
4. *William B. Barry* (1935).
5. *James A. Roe* (1944).
6. *James J. Delaney* (1944).
7. *John J. Delaney* (1931).
8. *Joseph L. Pfeifer* (1935).
9. *Eugene J. Keogh* (1936).
10. *Andrew L. Somers* (1925).
11. *James J. Heffernan* (1940).
12. *John J. Rooney* (1944).
13. *Donald L. O'Toole* (1936).
14. *Leo F. Rayfiel* (1944).
15. *Emanuel Celler* (1923).
16. Ellsworth B. Buck (1944).
17. Joseph Clark Baldwin (1941).
18. VITO MARCANTONIO (1938).
19. Vacant
20. *Sol Bloom* (1923).
21. *James H. Torrens* (1944).
22. *Adam C. Powell, Jr.* (1944).
23. *Walter A. Lynch* (1940).
24. *Benjamin J. Rabin* (1944).
25. *Charles A. Buckley* (1935).
26. *Peter A. Quinn* (1944).
27. Ralph W. Gwinn (1944).
28. Ralph A. Gamble (1937).
29. Augustus W. Bennet (1944).
30. Jay LeFevre (1943).
31. Bernard W. (Pat) Kearney (1943).
32. *William T. Byrne* (1936).
33. Dean P. Taylor (1943).
34. Clarence E. Kilburn (1940).
35. Hadwen C. Fuller (1944).
36. Clarence E. Hancock (1927).
37. Edwin A. Hall (1939).
38. John Taber (1923).
39. W. Sterling Cole (1935).
40. *George F. Rogers* (1944).
41. James W. Wadsworth (1933).
42. Walter G. Andrews (1931).
43. Edward J. Elsaesser (1944).
44. John C. Butler (1941).
45. Daniel A. Reed (1919).

NORTH CAROLINA

1. *Herbert C. Bonner* (1940).
2. *John H. Kerr* (1923).
3. *Graham A. Barden* (1935).
4. *Harold D. Cooley* (1935).
5. *John H. Folger* (1941).
6. *Carl. T. Durham* (1938).
7. *J. Bayard Clark* (1929).
8. *W. O. Burgin* (1938).
9. *R. L. Doughton* (1911).
10. Vacant
11. *Alfred L. Bulwinkle* (1931).
12. *Zebulon Weaver* (1931).

NORTH DAKOTA

At Large—William Lemke (1943).
Charles R. Robertson (1944).

OHIO

At Large—George H. Bender (1938).

1. Charles H. Elston (1938).
2. William E. Hess (1938).
3. *Edward J. Gardner* (1944).
4. Robert F. Jones (1938).
5. Cliff Clevenger (1938).
6. Edward O. McCowen (1943).
7. Clarence J. Brown (1938).

8. Frederick C. Smith (1938).
9. Homer A. Ramey (1943).
10. T. A. Jenkins (1925).
11. Walter E. Brehm (1943).
12. John M. Vorys (1938).
13. Alvin F. Weichel (1943).
14. *Walter B. Huber* (1944).
15. P. W. Griffiths (1943).
16. *William R. Thom* (1944).
17. J. Harry McGregor (1940).
18. Earl R. Lewis (1943).
19. *Michael J. Kirwan* (1936).
20. *Michael A. Feighan* (1943).
21. *Robert Crosser* (1923).
22. Frances P. Bolton (1940).

OKLAHOMA

1. George B. Schwabe (1944).
2. *William G. Stigler* (1944).
3. *Paul Stewart* (1943).
4. *Lyle H. Boren* (1936).
5. *A. S. Mike Monroney* (1938).
6. *Jed Johnson* (1926).
7. *Victor Wickersham* (1941).
8. Ross Rizley (1940).

OREGON

1. Vacant
2. Lowell Stockman (1943).
3. Homer D. Angell (1938).
4. Harris Ellsworth (1943).

PENNSYLVANIA

1. *William A. Barrett* (1944).
2. *William T. Granahan* (1944).
3. *Michael J. Bradley* (1936).
4. *John Edward Sheridan* (1939).
5. *William J. Green, Jr.* (1944).
6. *Herbert J. McGlinchey* (1944).
7. James Wolfenden (1928).
8. Charles L. Gerlach (1938).
9. J. R. Kinzer (1930).
10. *John W. Murphy* (1943).
11. *Daniel J. Flood* (1944).
12. Ivor D. Fenton (1938).
13. *Daniel K. Hoch* (1943).
14. Wilson D. Gillette (1941).
15. Robert F. Rich (1944).
16. Samuel K. McConnell, Jr. (1944).
17. Richard M. Simpson (1937).
18. John C. Kunkel (1938).
19. Leon H. Gavin (1943).
20. *Francis E. Walter* (1933).
21. Chester H. Gross (1943).
22. D. Emmert Brumbaugh (1944).
23. *J. Buell Snyder* (1933).
24. *Thomas E. Morgan* (1944).
25. Louis E. Graham (1938).
26. Harve Tibbott (1938).
27. *Augustine B. Kelley* (1941).
28. Robert L. Rodgers (1938).
29. Howard E. Campbell (1944).
30. Robert J. Corbett (1944).
31. James G. Fulton (1944).
32. *Herman P. Eberharter* (1936).
33. Vacant

RHODE ISLAND

1. *Aime J. Forand* (1940).
2. *John E. Fogarty* (1940).

SOUTH CAROLINA

1. *L. Mendel Rivers* (1940).
2. *John J. Riley* (1944).
3. *Butler B. Hare* (1938).
4. *Joseph R. Bryson* (1938).
5. *James P. Richards* (1933).
6. *John L. McMillan* (1938).

SOUTH DAKOTA

1. Karl E. Mundt (1938).
2. Francis Case (1936).

TENNESSEE

1. B. Carroll Reece (1933).
2. John Jennings, Jr. (1940).
3. *Estes Kefauver* (1939).
4. *Albert Gore* (1938).
5. *Harold H. Earthman* (1944).
6. *J. Percy Priest* (1940).
7. *Wirt Courtney* (1939).
8. *Tom Murray* (1943).
9. *Jere Cooper* (1929).
10. *Clifford Davis* (1940).

TEXAS

1. *Wright Patman* (1929).
2. *J. M. Combs* (1944).
3. *Lindley Beckworth* (1938).
4. *Sam Rayburn* (1913).
5. *H. W. Sumners* (1913).
6. *Luther A. Johnson* (1923).
7. *Tom Pickett* (1944).
8. *Albert Thomas* (1936).
9. *J. J. Mansfield* (1917).
10. *Lyndon B. Johnson* (1937).
11. *William R. Poage* (1936).
12. *Fritz G. Lanham* (1919).
13. *Ed Gossett* (1938).
14. *John E. Lyle* (1944).
15. *Milton H. West* (1933).
16. *R. Ewing Thomason* (1938).
17. *Sam M. Russell* (1940).
18. *Eugene Worley* (1940).
19. *George H. Mahon* (1935).
20. *Paul J. Kilday* (1938).
21. *O. C. Fisher* (1943).

UTAH

1. *Walter K. Granger* (1943).
2. *J. W. Robinson* (1933).

VERMONT

At Large—Charles A. Plumley (1935).

VIRGINIA

1. *Schuyler O. Bland* (1918).
2. *Ralph H. Daughton* (1944).
3. *J. Vaughan Gary* (1945).
4. *Patrick H. Drewry* (1920).
5. *Thomas G. Burch* (1931).
6. Vacant
7. *A. Willis Robertson* (1933).
8. *Howard W. Smith* (1931).
9. *John W. Flannagan, Jr.* (1931).

WASHINGTON

1. *Hugh De Lacey* (1944).
2. *Henry M. Jackson* (1940).
3. *Charles R. Savage* (1944).
4. Hal Holmes (1943).
5. Walt. F. Horan (1943).
6. *John M. Coffee* (1936).

WEST VIRGINIA

1. *Matthew M. Neeley* (1944).
2. *Jennings Randolph* (1933).
3. *Cleveland M. Bailey* (1944).
4. Hubert S. Ellis (1943).
5. *John Kee* (1933).
6. E. H. Hedrick (1944).

WISCONSIN

1. Lawrence H. Smith (1941).
2. Robert K. Henry (1944).
3. William H. Stevenson (1940).
4. *Thad F. Wasielewski* (1940).
5. *Andrew J. Biemiller* (1944).
6. Frank B. Keefe (1938).
7. Reid F. Murray (1938).
8. John W. Byrnes (1944).
9. MERLIN HULL (1935).
10. Alvin E. O'Konski (1943).

WYOMING

At Large—Frank A. Barrett (1943).

ALASKA

E. L. Bartlett (1944).

HAWAII

Joseph R. Farrington (1943).

PHILIPPINE ISLANDS

Carlos P. Romulo (1944).

PUERTO RICO

Jesús T. Piñero (1944).

FEDERAL JUDICIAL ORGANIZATION

By William M. Schuyler
Editor, *The American Year Book*

SUPREME COURT OF THE UNITED STATES

Harlan F. Stone (New York), Chief Justice of the United States, appointed 1941.

Hugo L. Black (Alabama), appointed 1937.

Stanley F. Reed (Kentucky), appointed 1938.

Felix Frankfurter (Massachusetts), appointed 1939.

William Orville Douglas (Minnesota), appointed 1939.

Frank Murphy (Michigan), appointed 1940.

Robert H. Jackson (New York), appointed 1941.

Wiley Blount Rutledge, Jr. (Kentucky), appointed 1943.

Harold H. Burton (Ohio), appointed 1945.

Officers of the Supreme Court: Clerk—Charles Elmore Cropley.

Deputy Clerks—Reginald C. Dilli, Hugh W. Barr, Harold B. Willey.

Marshal—Thomas E. Waggaman.

Reporter—Ernest Knaebel.

Librarian—Oscar D. Clarke.

UNITED STATES CIRCUIT COURT OF APPEALS

District of Columbia Judicial Circuit.—Mr. Chief Justice Stone.

First Circuit.—Mr. Justice Frankfurter; Calvert Magruder (Massachusetts), John C. Mahoney (Rhode Island), Peter Woodbury (New Hampshire).

Second Circuit.—Mr. Justice Jackson; Learned Hand (New York), Thomas W. Swan (Connecticut), Augustus N. Hand (New York), Harrie Brigham Chase (Vermont), Charles E. Clark (Connecticut), Jerome N. Frank (New York).

Third Circuit.—Mr. Justice Burton; Albert Branson Maris (Pennsylvania), John Biggs, Jr. (Delaware), John J. O'Connell (Pennsylvania), Herbert F. Goodrich (Pennsylvania), Gerald McLaughlin (New Jersey).

Fourth Circuit.—Mr. Chief Justice Stone; John J. Parker (North Carolina), Morris A. Soper (Maryland), Armistead M. Dobie (Virginia).

Fifth Circuit.—Mr. Justice Black; Samuel H. Sibley (Georgia), Joseph C. Hutcheson, Jr. (Texas), Edwin R. Holmes (Louisiana), Leon McCord (Alabama), Curtis L. Waller (Florida), Elmo Pearce Lee (Louisiana).

Sixth Circuit.—Mr. Justice Reed; Xenophon Hicks (Tennessee), Charles C. Simons (Michigan), Florence E. Allen (Ohio), John D. Martin (Tennessee), Thomas F. McAllister (Michigan).

Seventh Circuit.—Mr. Justice Murphy; Evan A. Evans (Wisconsin), William M. Sparks (Indiana), J. Earl Major (Illinois), Sherman Minton (Indiana), Otto Kerner (Illinois).

Eighth Circuit.—Mr. Justice Rutledge; Kimbrough Stone (Missouri), John B. Sanborn (Minnesota), Archibald K. Gardner (South Dakota), Joseph W. Woodrough (Nebraska), Seth Thomas (Iowa), Harvey M. Johnsen (Missouri), Walter G. Riddick (Arkansas).

Ninth Circuit.—Mr. Justice Douglas; Francis A. Garrecht (Washington), William Denman (California), Clifton Mathews (California), Albert Lee Stephens (California), William Healey (Idaho), Homer T. Bone (Washington), William E. Orr (California).

Tenth Circuit.—Mr. Justice Rutledge; Orie L. Phillips (Colorado), Sam G. Bratton (New Mexico), Walter A. Huxman (Kansas), Alfred P. Murrah (Oklahoma).

UNITED STATES COURT OF CUSTOMS AND PATENT APPEALS

Finis James Garrett (Tennessee), Presiding Judge, appointed 1929.

Oscar E. Bland (Indiana), appointed 1923.

Charles Sherrod Hatfield (Ohio), appointed 1923.

Joseph R. Jackson (Montana), appointed 1937.

Ambrose O'Connell (Iowa), appointed 1944.

UNITED STATES COURT OF APPEALS FOR THE DISTRICT OF COLUMBIA

D. Lawrence Groner, Chief Justice.
Harold M. Stephens.
Henry White Edgerton.
Bennett Champ Clark.
Wilbur K. Miller.
Elijah B. Prettyman.

UNITED STATES EMERGENCY COURT OF APPEALS

Albert Branson Maris, Chief Judge.
Calvert Magruder.
Walter C. Lindley.
Bolitha J. Laws.
Thomas F. McAllister.

COURT OF CLAIMS OF THE UNITED STATES

Richard S. Whaley (South Carolina), Chief Justice, appointed 1939.

Benjamin H. Littleton (Tennessee), appointed 1929.

Samuel E. Whitaker (Tennessee), appointed 1939.

Marvin Jones (Texas), appointed 1940.

Joseph W. Madden (Illinois), appointed 1941.

DISTRICT COURT OF THE UNITED STATES FOR THE DISTRICT OF COLUMBIA

Bolitha J. Laws, Chief Justice.
James M. Proctor.
F. Dickinson Letts.
Daniel W. O'Donoghue.
Jennings Bailey.
T. Alan Goldsborough.
James W. Morris.
Jesse C. Adkins.
David A. Pine.
Matthew F. McGuire.
Henry A. Schweinhaut.
Alexander Holtzoff.

UNITED STATES CUSTOMS COURT

Webster J. Oliver, Presiding Judge.
William J. Tilson.
Genevieve R. Cline.
David H. Kincheloe.
William J. Keefe.
William A. Ekwall.
William P. Cole.
Charles D. Lawrence.
Irvin C. Mollison.

TAX COURT OF THE UNITED STATES

Bolon B. Turner, Presiding Judge.
Charles P. Smith.
John M. Sternhagen.
C. Rogers Arundell.
Ernest H. Van Fossan.
J. Edgar Murdock.
Eugene Black.
J. Russell Leech.
Arthur J. Mellott.
William W. Arnold.
John A. Tyson.
Samuel B. Hill.
Richard L. Disney.
Marion J. Harron.
John W. Kern.
Clarence V. Opper.

UNITED STATES MARSHAL'S OFFICE

United States Marshal.—W. Bruce Matthews.

UNITED STATES ATTORNEY'S OFFICE

United States Attorney, District of Columbia.—Edward M. Curran.

Assistants.—John W. Fihelly, Charles B. Murray, George E. McNeil, Cecil R. Heflin, Grace B. Stiles, John B. Diamond, Arthur J. McLaughlin, William Hitz, Stephen C. Miller, Sidney S. Sachs, John C. Conliff, Jr., John P. Burke, Ray L. Jenkins, Sylvan Schwartz, Joseph F. Lawless, Helena D. Reed, John J. O'Leary, Daniel B. Maher, Andrew J. Howard, John D. Lane, William S. McKinley, Evan T. Davis, Brewster H. Marshall, Edward Molenof, John Lewis Smith.

III. THE NATIONAL GOVERNMENT

CIVIL SERVICE IN THE UNITED STATES

By Harry B. Mitchell
President, The United States Civil Service Commission

THE MERIT SYSTEM—POST-WAR

The end of the fighting, while relaxing certain pressures on the United States Civil Service Commission, especially in the field of recruiting, raised other and more perplexing problems.

New procedures will be required to change as rapidly as possible from the limited type of appointments permissible under the War Service Regulations which became effective March 16, 1942, to the permanent probational type required in peacetime. War agencies are being liquidated in whole or in part, the general force of employees is being rapidly reduced, and Congress in 1944 passed a new veterans preference statute of broad scope.

The Veterans Administration which is charged with the care of the disabled veteran after his discharge from the armed forces, with the administration of the largest life insurance system in the world, and with the administration in large part of the so-called "GI Bill of Rights," is an expanding agency. The Surplus Property Administration also is on the "up" side in employment for the immediate future, and there are other activities of the Government which will, no doubt, expand to their former peacetime level. Congress is providing for further development of civilian aeronautics.

This transition period, like convalescence from a serious sickness, will involve difficult problems in attempting to restore normal civil service procedures.

PAY LEGISLATION

Two important acts involving pay legislation were passed during the year: the Federal Employees' Pay Act of 1945 and the Postal Pay Act of 1945.

The Federal Employees' Pay Act of 1945 covers (outside of the Postal establishment) the white-collar worker whose pay was fixed originally by statute in 1923. It does not cover employees (principally tradesmen) whose pay is adjusted from time to time by wage boards to conform to the pay scales prevailing in private industries in the respective local communities. Approximately 1,200,000 employees are within the terms of this new pay act.

The average increase in basic pay is 15.9 per cent, ranging from 20 per cent for the lowest paid employee groups to 8.9 per cent for the highest paid groups.

The statute makes permanent provision for overtime pay of time and a half beyond 40 hours of work a week for these white-collar workers. Beginning in December 1942, temporary legislation had authorized such overtime. The basic work week, however, was increased to 40 hours from the 39 hours previously required.

Other provisions include: (1) permitting returning veterans to count their military service toward within-grade salary advancement upon restoration to duty; (2) night pay differential of 10 per cent for work performed between 6 p.m. and 6 a.m. as a regular tour of duty; and (3) holiday pay of time and a half for work on a regular holiday.

The Postal Pay Act reclassifies the salaries of postmasters, officers, and employees of the Postal Service. It provides that for many of the positions the present incumbents will have their existing rates adjusted to increase base salary 20 per cent or $400, whichever is the lesser amount, but not less than $300.

Another difference is found in the provision relating to compensatory time in lieu of overtime for work on Saturdays, Sundays, or holidays. The postmaster is given the option to pay for overtime service in money whenever the exigencies of the service require. In the Federal Employees' Pay Act, referred to above, overtime beyond 40 hours up to 48 hours must be paid for in money, and for overtime performed beyond 48 hours the option rests with the employee to take compensatory time off.

VETERANS

According to a statement recently issued by the National Headquarters of the Selective Service System, the returning veteran who meets all the requirements of the Selective Training and Service Act for reemployment in his former job has an absolute right of reinstatement in his former position or in a substantially similar position.

The Selective Service Act is interpreted as restoring the veteran to his old job, if he meets the conditions of the act, rather than merely restoration of his "job rights" in accordance with a system of seniority. The statement reiterates the position of Selective Service that the only conditions upon the veteran's right to reinstatement are those specifically enumerated in the Act, as follows: 1. That the veteran receive a certificate of satisfactory service; 2. That he still be qualified to perform the duties of his position; 3. That he make timely application for reinstatement; 4. That the restoration be not unreasonable or impossible because of the employer's changed circumstances.

Under an executive order signed Sept. 25, 1945 by President Truman, honorably discharged veterans who have been awarded the Congressional Medal of Honor may be appointed to the position of contact representative in the Veterans Administration without reference to civil service procedures.

In an executive order of the President, signed Oct. 19, 1945, the United States Civil Service Commission is authorized to confer permanent civil service status on disabled veterans who are currently serving satisfactorily under war-duration appointments and who establish the present existence of a 10 per cent service-connected disability. The order also provides that exceptions to the war-duration limitation on appointments shall be made in the case of similarly disabled veterans who are certified from the Commission's eligible lists.

Under the National Selective Service and Training Act, veterans released from military service were formerly required to apply for reinstatement in their former jobs within 40 days after their discharge. A recent amendment to the act, signed by the President on Dec. 8, 1944, extends this time limit to 90 days. The amendment also applies the time limit to veterans released from hospitalization which continued not more than one year after separation from active military service. The revised regulations will affect employment rights of veterans returning to positions in private industry and in the Federal service.

More than 32,000 veterans, including wives of disabled veterans and the widows of veterans, were placed in Federal positions during October 1945, the total for the first ten months of the calendar year being 189,830. A total of 468,000 veteran placements have been made in the Federal civil service since Jan. 1, 1943.

EMPLOYMENT IN THE EXECUTIVE CIVIL SERVICE

As stated in 1944 the high figure in wartime employment in the Federal Government in continental United States was 3,156,953, reached in June 1943. The highest number reached thereafter was 2,941,209 in July 1944. By June 1945 it was down to 2,915,476, and thereafter the reduction was rapid. At the end of October the number employed was 2,509,914, of whom 842,930 were women. The total number employed in the Washington, D. C. metropolitan area at the end of October was 233,255, a decrease of 54,000 from the peak recorded in 1943. It is believed that another half million employees will be dropped by June 1946. The accompanying table shows the number employed at the end of each fiscal year in two-year periods. On Sept. 30, 1945 the number

	June 30, 1937	June 30, 1939	June 30, 1941	June 30, 1943	June 30, 1945
Competitive classified positions....	532,073	622,832	990,218	(*)	(*)
Unclassified and exempt positions..	309,591	297,478	367,932	(*)	(*)
	841,664	920,310	1,358,150	3,156,953	2,915,476

* Statistics showing the division between competitive classified positions and unclassified positions are no longer available under War Service appointment procedure.

of paid employees outside continental United States was approximately 850,500. These are mostly low-paid native workers employed by the Army and Navy in military occupational activities. The Army employed approximately 733,000 of these persons, and the Navy 60,000, the Panama Canal 20,000, and the Panama Railroad 6,000.

In June 1945 there were more employees of the Federal Government in the states of California and New York than in the District of Columbia. Employed in California were 317,236 and 293,021 in New York, as compared with 256,711 in the metropolitan area of the District of Columbia. Pennsylvania was next with 196,540 employees, and there were more than 100,000 Federal employees in each of the states of Illinois, Massachusetts, Ohio, Texas, Virginia, and Washington.

STATE CIVIL SERVICE

Retirement systems for municipal employees are in operation in 81 per cent, or 858, of the nation's cities of more than 10,000 population, as reported by the International City Managers' Association. Statewide retirement systems for municipal employees nearly doubled in number in 1945, when nine states adopted legislation establishing such systems and two other states amended previously enacted statutes.

Claims of three Federal employees for loss of pay were upheld in a recent unanimous decision of the United States Court of Claims. The judgment, awarding recovery of unpaid compensation up to the time the employees left the government service, grew out of a rider attached to a Congressional appropriation bill prohibiting use of the funds for payment of these employees' salaries.

COLLECTIVE BARGAINING—PUBLIC EMPLOYEE ASSOCIATION—STATUS AS "LABOR UNION"

The United States Supreme Court, in Railway Mail Association *v.* Corsi, 89 L. Ed. 1435, recently upheld the determination of the New York courts that the Railway Mail Association, a fraternal organization composed of postal employees in the Federal civil service, is a "labor organization" subject to regulation by state law. The New York statute prohibits any labor organization to discriminate in its membership on the basis of color, race, or creed.

The United States Supreme Court, in affirming the decision of the New York Court of Appeals, held that it was within the province of any state to determine the conditions under which any membership corporation may conduct its business within its borders, and that the prohibitions contained in the New York law against discrimination were in no wise repugnant to the Federal Constitution, but, on the contrary, complied with its spirit. The court overruled the contention that only the Federal Government could legislate with respect to an organization the membership of which was restricted exclusively to Federal employees.

CIVIL SERVICE BY STATES

Alabama.—During the 1945 session of the Alabama legislature, a bill was passed providing a retirement system for state employees to become effective Oct. 1. The plan provides for the deduction of 3½ per cent of employees' salaries, to be matched by state funds, to build up credits from which an annuity and pension will be paid each employee upon retirement. An employee may voluntarily retire at 60 years of age but it is obligatory that he retire when he becomes 70.

Arkansas.—A fireman who was injured while in army service claimed a pension under a typical municipal pension statute, and under a city ordinance requiring restoration of returning employees and providing that military service "shall be counted . . . as service" in the fire or police department. The court first observed that the pension statute authorized pension payments only for injuries incurred in the course of employment, and no matter how desirable the social purpose, it can not be said that military injuries come within the fair meaning of that language. As for the city ordinance, it "does not say that any injury received in the army would be considered as received while, and in consequence of, the performance of his duty as a fireman. The ordinance only says the time in the army is to be counted as though the soldier had been on constant duty as a fireman."

California.—The Supreme Court of California recently handed down a decision which hinges on the distinction between the abolition of a position and a layoff of an employee whose position has been abolished. (Stockton *v.* Department of Employment, 153 P. (2d) 741 (Cal.)). The mere abolition of a position does not automatically terminate the civil service status of the employee.

All employees except wardens of the California State prisons came within civil service jurisdiction on Jan. 1, 1945. The extension of civil service to this group of employees was a result of a law enacted by the 1944 state legislature revising the state's entire penal system.

Marysville and Contra Costa County voted in favor of the merit system. San Francisco, through charter amendments, extended its present merit system to the Steinhart Aquarium, the City Attorney's Office, and the Public Defender's Office.

Connecticut.—An ordinance permitting city employees to join municipal unions but prohibiting them from participating in a strike against the city was adopted by the Hartford Common Council. All departmental administrative heads of the city are directed by the new law to establish in their departments effective machinery whereby grievances, complaints, problems, or suggestions may be presented by the organization. The ordinance prohibits discrimination against any employee who joins the union.

Illinois.—Voters in Rockford and Quincy recently approved the establishment of civil service programs under the state enabling act. The Rockford civil service law includes all municipal employees except those of the police and fire departments, which are already covered by separate systems.

Legislation was passed in Illinois and signed by the Governor amending the state civil service law and necessitating the formulation of new rules and procedures by the state civil service commission. Among the important changes are the following provisions: Substitution of the rule of three for top eligible; extension of preference to unmarried widows or wives of disabled veterans; veterans may not be passed over by appointing officer without valid cause; state license only required for admission to examination for any trade or profession, no educational requirement; extension of time limit on eligibility for reinstatement for veterans hospitalized or taking educational opportunities.

Indiana.—Five bills were passed affecting personnel administration providing as follows: That all employees of the State and County Departments of Public Welfare are to be selected from eligible lists established by the State Personnel Board and paid in accordance with its pay plan.

A second bill amends the state personnel act to provide for the use of war duration appointments.

A third measure liberalizes previously existing veterans' preference legislation along the lines of policies prevailing under Federal legislation.

A fourth provides that time spent by employees in military service is to be included in computing seniority credit.

A fifth provides for a comprehensive public employee retirement system for state employees, which included provisions whereby employees of municipalities within the state can join in the program on a voluntary basis.

Iowa.—The state adopted a pension system for all public employees who are not now members of an existing pension plan. The new pension system became effective Jan. 1, 1946. Contributions and benefits under the system are similar to those of the old age and survivors' insurance section of the Federal Social Security Act. Legislation was adopted granting servicemen preference on public jobs and extending preference to veterans of all wars.

Kansas.—The Kansas legislature, in passing a bill creating a State Office of Veterans Affairs, specified that all personnel in the new office, except county assistants to the traveling field representatives, are to be selected in accordance with the state civil service act. Only the directors and advisory committee must be veterans.

Effective immediately, veterans receive five and ten points on civil service examinations, with 15 points awarded the disabled. The state civil service act was amended to provide for layoff procedures to facilitate reabsorption of former state employees returning from military leave, and to provide for war-duration appointments in educational and correctional institutions.

Kentucky.—Under a recent ordinance adopted by the Louisville Board of Aldermen, the positions of Chief and Assistant Chief of Police and the positions of Chief and Assistant Chief of Firemen were placed under the city's civil service system. The staff of the Louisville Planning and Zoning Commission was recently placed under the city's civil service system.

Maryland. — Montgomery County has adopted legislation providing for the establishment of a merit system for certain county employees. A civil service commissioner, appointed by the county commissioners for a term of four years, will be authorized to establish a classification plan covering positions in the county service to hold examinations and establish lists of persons eligible for the positions; to prescribe standards of performance; and to provide training facilities for old and new employees. This system allows a preference credit of 10 per cent on qualifying examinations for any Second World War veteran who has served 12 months or more and has been honorably discharged. Any veteran who has had overseas duty in this war will be granted a preference credit of 20 per cent on such examination.

Michigan.—Employees of the city of Detroit recently voted nearly 5-to-1 to accept a $500,000 hospital and death benefit insurance plan proposed by the mayor to the city council. The plan consists of two parts: (1) a mandatory death benefit (life insurance) of $2,000 for each employee, to cost $26 a year per employee with the city paying half and the employee half; and (2) a hospitalization plan that is optional with employees through contract with a private company at a cost of $17.68 per year, with the employee and city each paying half. The hospital plan, which includes surgery and x-ray, would cost the city $244,700.

Municipalities in Michigan now may participate in a statewide pension system for their employees under provisions of the recent state legislature. Civil service has been extended to the road commission employees of Wayne County, along with a pay increase of ten cents per hour, a pension plan, and classification readjustment. Alpena has installed a municipal civil service system which includes job classification, salary and wage standardization, personnel rules and procedures, and a system of forms and records.

Minnesota.—In Cranak *v.* Link, 17 N.W. (2d) 359 (Minn.) the court pointed out that, while under certain charter provisions it was proper to employ non-civil service personnel, it would be an obvious evasion of civil service requirements to change the title of the position, remove it from the classified service, and have its duties performed by the same person, outside the scope of the civil service system.

Montana.—Legislation was enacted providing for a statewide public employee retirement system.

Nebraska.—Legislation was enacted in Nebraska establishing a merit system program for clerical employees in more than a dozen state departments and agencies. Administration of the system will be directed by a council composed of three members appointed by the governor with the consent of the legislature.

Nevada.—Legislation was adopted providing a merit system for all employees of the State Board of Health.

New Jersey.—Hunterdon County and the cities of Burlington, Ocean City, and Harrison voted in favor of the merit system.

New York.—Section 22 of the New York Civil Service Law, which forbids removal of veterans except for incompetency or misconduct shown after a hearing upon stated charges, must be "meticulously" observed in order to justify a removal of a veteran.

Veterans' preference provisions in the New York state constitution were revised and broadened in an amendment approved by voters in the recent November elections. The amendment, which became effective Jan. 1, 1946, provides for several changes in existing constitutional provisions regarding veterans' preference in state and municipal employment in New York. Under the amended constitution, veterans who possess a disability certified by the United States Veterans Administration receive absolute preference in original entrance and promotional examination by being placed at the top of the eligible list. Non-disabled veterans also go to the top of the eligible list immediately following any disabled veterans on the list.

One provision of the constitutional amendment places a five-year limit on preference for non-disabled veterans. These veterans are entitled to preference until Dec. 31, 1950, if they are discharged from military service up to Dec. 31, 1945. Those who are discharged subsequent to that date are eligible for preference for five years after the date of their termination of military service. The amendment places no time limit on preference for disabled veterans.

In another proviso, the new constitutional amendment requires that in case of the need for laying off employees, members of the armed forces will be entitled to preference in retention "in inverse order" of the preference provided by the amendment.

Ohio.—Increased retirement benefits have been accorded to members of the Ohio public employees' retirement system by recent action of the state legislature. The revised retirement program includes a 50 per cent increase in prior service credits for public service before 1935, and authorizes retirement after 30 years of service, providing the member has reached the age of 55. In addition, retirement pay is now based upon the employee's average salary for the ten years immediately preceding retirement. The former basis was the pay received during the five-year period 1930 to 1934, inclusive. The employees of all municipalities in the state, regardless of population, are members of the state retirement system, except Cincinnati, which has its own system.

Oregon. — Oregon became the twenty-first state to adopt a civil service law when a bill passed during the recent legislative session was signed by the governor. Also passed during the legislative session was a bill providing for a comprehensive public employee retirement plan for state employees and for municipal employees within the state.

Pennsylvania.—An agreement between the city of Philadelphia and a local council of the American Federation of State, County and Municipal

Employees regarding wages, hours, and working conditions for more than 5,000 per diem employees in the public works department, was adopted on Dec. 7 by the Philadelphia City Council. This agreement supersedes a similar contract made in 1940 which expired on May 1, 1944. The new agreement, like its predecessor, does not mention specific wage rates.

Under the new contract, holidays are to be increased from six to seven days per year by the addition of Good Friday. Overtime, for which employees are to be paid time-and-a-half the regular rate, is to consist not only of time worked in excess of eight hours on any work day as formerly, but also on time after 44 hours work in any week even though the regular work week is 48 hours.

Additional provisions of the agreement relate to the recognition of the union as the sole bargaining agency for its members; vacation leave, payment of double time for Sunday and holiday work, and the discharge and suspension of employees. A no-strike provision is included in the contract.

An act was passed providing for the establishment and extension of civil service to fire department personnel. In boroughs, towns, and townships of the first class, where there are three or more paid fire fighters and where no civil service commission now exists, the civil service system is to be established. Three commissioners will be appointed to administer the act where no civil service system now exists.

The city council of Reading adopted an ordinance recognizing a local of the American Federation of State, County, and Municipal Employees as bargaining agents for city workers and providing paid vacations and holidays, time and one-half for overtime, and grievance procedure for protection against dismissal without cause.

South Carolina.—South Carolina adopted a constitutional amendment providing pensions for state, county, and city employees.

Texas.—Texas voters gave the cities or the state legislature authority to set up retirement systems for local governments.

Utah.—In Utah, legislation has been approved establishing a personnel system for certain employees in local governmental jurisdictions within the state. Under the law, civil service systems are to be installed in the Salt Lake and Weber County fire departments. A law has been passed for establishment of pension systems for employees of cities of the first class.

West Virginia.—Legislation was passed allowing five points to veterans and 10 to disabled veterans in merit system tests.

Wisconsin.—Ordinances establishing civil service programs have recently been adopted in Wood and Outagamie counties. In the former, the civil service program is limited to county highway patrolmen. The Outagamie ordinance calls for the establishment of a merit system covering all county employees.

PERIODICAL PUBLICATIONS

Army and Navy Journal
1701 Connecticut Ave., N.W., Washington, D. C.
Congressional Digest
2131 LeRoy Place N.W., Washington, D. C.
Congressional Directory
U. S. Government Printing Office, Washington, D. C.
Congressional Record
U. S. Government Printing Office, Washington, D. C.
United States News
2201 M Street N.W., Washington, D. C.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

Academy of Political Science, Fayerweather Hall, Columbia University, New York City.

American Academy of Political and Social Science, 3457 Walnut St., Philadelphia, Pa.

American Bar Assn., 1140 N. Dearborn St., Chicago, Ill.

American Historical Assn., Library of Congress Annex, Study Room 274, Washington, D. C.

American Political Science Assn., 105 Harris Hall, Northwestern University, Evanston, Ill.

Commercial Law League of America, 111 W. Monroe St., Chicago, Ill.

Honest Ballot Assn., Inc., 27 William St., New York City.

Institute of Public Administration, 261 Broadway, New York City.

National Assn. of Legal Aid Organizations, 25 Exchange St., Rochester, N. Y.

National Civil Service Reform League, 67 W. 44th St., New York City.

Town Hall Inc., The, 123 West 43rd St., New York City.

DIVISION IV

STATE GOVERNMENT

STATE ADMINISTRATION AND LEGISLATION

By David W. Robinson
Council of State Governments

GENERAL

Forty-six state legislatures met in regular or special session during 1945. With the exception of Mississippi and Louisiana, the legislatures (44 in regular session) were meeting during the period of the allied war victory in Europe and were thus in a position to anticipate post-war demands upon their state facilities, services, and finances.

The general trend of legislation enacted by the states in 1945 reflected the outcome of the war, in the following broad classifications: (1) changes in state laws providing rights, benefits, and privileges to veterans, members of the armed forces, their dependents, and their continuing peacetime organizations; (2) the further development of plans and programs for dealing with existing and anticipated employment and unemployment problems; and (3) the renewal of state interest and participation in extending such social services as public housing, public health, and public education.

STATE VETERANS ORGANIZATIONS

All 48 states now have an office, department, or agency to administer veterans affairs. New state veterans agencies were created, or existing bureaus reorganized into state veterans offices, by the legislatures of 15 states in 1945: Alabama, Arkansas, Georgia, Illinois, Indiana, Kansas, Louisiana, Montana, Nebraska, New York, North Dakota, Oregon, Tennessee, Washington, and West Virginia.

Alabama's legislature set up an agency to help re-orient veterans to civilian life, and appropriated $350,000 to finance the agency, while Arkansas established a state veterans officer, and enacted legislation appropriating $95,000 a year to pay salaries of service officers in each of the state's 75 counties.

Indiana's new department of veterans affairs was established especially to aid discharged veterans in obtaining benefits to which they are entitled from the state and Federal governments.

New York approved a series of laws reorganizing the state program of assistance to veterans. The legislature established a permanent state division of veterans affairs in the executive department with an initial appropriation of $2,285,000. Provision was also made for a permanent state veterans service agency and for local veterans agencies throughout the state.

Other forms of state-local veterans administrations were created in Kansas, Minnesota, Oregon, and Wisconsin.

STATE VETERANS BENEFITS

The state legislatures, in 1945, extended many state laws previously enacted granting benefits and privileges to veterans, their dependents and organizations.

Such legislation included: (1) claims services, designed to assist all veterans in the prosecution of their claims against the United States Government; (2) hospital and domiciliary care of veterans and their dependents in state institutions; (3) economic grants to veterans and men in service and their eligible dependents to relieve or prevent want and distress; (4) employment preferences and preservation of job rights; (5) land settlement benefits; and (6) occupational and tax exemptions.

New legislation, enacted in 1945, comprehends: (1) bonuses paid to veterans or their legal heirs; (2) educational grants to eligible veterans to prevent want and distress when Federal or other benefit is inadequate to meet the veteran's need; (3) increased educational opportunities and training courses in state institutions; and (4) loans to qualified veterans for their rehabilitation, education, or for the purpose of aiding them in the purchase of homes, farms, or businesses.

THE MASSACHUSETTS DOCTRINE

Massachusetts took an approach on the veterans problem which has subsequently been characterized as the Massachusetts Doctrine. In the Report of the Post-war Rehabilitation Commission it is stated: "The problem of the veteran is not one of this minute, but will be a continuing process for years to come. The problem is, first, a responsibility of the Commonwealth and secondly, and perhaps more intimately, the problem of each local community." Among the laws enacted in Massachusetts were: a bonus to veterans of the Second World War; removal of disability of minority of veterans qualified under the G. I. Bill of Rights; a farm-aid bureau in the Department of Agriculture to assist veterans wishing to engage in farming.

MARYLAND AND MISSOURI

The Maryland legislature recommended that the Governor grant pardons to all parolees with an honorable discharge who served in the Second World War. Missouri will accept applications for bonuses to be paid veterans or their dependents, until Dec. 31, 1947, in the amount of $10 per month of service with a maximum payment of $250. New Hampshire also passed a veterans bonus bill.

SUMMARY OF STATE VETERAN LEGISLATION

Summarizing state veteran legislation as it has developed during the Second World War and as it has been extended from previous wars, the following benefits and privileges are available:

Bonuses.—Vermont, New Hampshire, Massachusetts, and Missouri have authorized the payment of bonuses, based generally on length of service and with maximum payments specified.

Burial Assistance.—Twenty-nine states have legislation for assistance in the burial of veterans of various wars. Such assistance is generally based on need. Indiana is the only state not requiring indigency as a prerequisite for the payment of burial expenses.

Institutional Care.—Twenty-four states maintain homes for needy veterans (often including veterans wives and widows). In seven states—California, Connecticut, Illinois, Michigan, Montana, Oklahoma, and Wisconsin—medical care on the premises of such homes is also provided.

Education.—Nineteen states have enacted legislation providing educational benefits for the orphaned children of veterans. Comprehensive educational benefits for veterans of the Second World War have been provided for in the G. I. Bill of Rights Act. Eleven states have, however, enacted supplementary educational opportunities—California, Illinois, Indiana, Massachusetts, Michigan, Montana, New York, Oklahoma, Oregon, South Dakota, and Texas.

Employment Preference.—Thirty-seven states have enacted legislation granting either civil service employment preference or favoring veterans for all public employment including public works projects. Among the special benefits provided by specific states: California, Connecticut, Illinois, Kansas, Massachusetts, Minnesota, North Carolina, Ohio, Rhode Island, and South Carolina extend civil service preference to veterans; Illinois, Michigan, Minnesota, Montana, New Hampshire, North Carolina, South Dakota, and Washington extend such preference in certain departments and on public works; 12 states interpreted existing laws as extending preference in all state employment.

Tax Exemption.—In 39 states, Second World War veterans are eligible for various kinds of tax or license fee exemption, either by reason of interpretation of existing law or through new legislative enactments. Tax exemptions vary among the states with respect to time limits. In some cases, notably property taxes, the exemptions are usually permanent. The most frequent exemptions for veterans are limited exemptions from state income and inheritance taxes, exemption of veterans from the property tax, exemption from personal and road taxes and from certain occupational and business license fees.

Loans and Land Settlement.—Owing to the broad loan provisions included in the G. I. Bill, the states have not entered into this field of veterans benefits with either the speed or the scope of their 1918-19 enactments. Four states have, up to this time, adopted measures designed to provide the veterans with land settlement benefits from farm and home loans. In California, veterans may draw from a revolving fund, known as the Veterans Farm and Home Building Fund, to acquire real estate not exceeding $10,000 in the case of a home, or $15,000 in the case of a farm. Amortization may be spread over a term of 40 years. In Oregon, a similar state fund has been created to advance money to resident veterans for the acquisition of homes and farms. South Dakota veterans, their dependents or survivors, may borrow a sum not exceeding $50 a month for 12 months to tide them over while government claims are being processed and adjudicated. New Jersey passed a law, before the adoption of the G. I. Bill, offering resident veterans $3,000 at low rates of interest to assist them in establishing themselves in business or profession. The state loan must be amortized, however, within six years.

EMPLOYMENT AND UNEMPLOYMENT

All 48 states have acted to stimulate private industry and to create jobs by establishing agencies on post-war reconstruction and development. In 1945, these agencies extended their blueprinting of specific public works projects within their jurisdictions; many were authorized by law to grant funds to local governments for the stimulation of plans and the drawing of specifications for local public works projects; most are engaged in some type of specialized state study on state resources and economic development.

The Alabama legislature authorized a study of the tax structure to equalize taxes and encourage private enterprise. Nebraska is also facilitating reconversion by lower tax rates. A complete industrial survey is underway in Oklahoma.

State aid to local planning and state participation in local public works and economic development programs, were considerably accelerated during 1945, further strengthening a two-year trend.

Tennessee, Alabama, Wisconsin, Virginia, Rhode Island, Michigan, and New York grant substantial state aid to local planning; states which provide direct local assistance, financially, to public works programs include New York, Michigan, California, New Jersey, Maryland, Illinois, and Pennsylvania. Many states, notably Arkansas, Georgia, and Louisiana gave staff assistance to the preparation of city and county capital improvement programs.

Two-thirds of California's planning budget goes to its community development programs, primarily for the purpose of creating new jobs. In New Jersey, the Department of Economic Development is working for the establishment in every community of a special development commission. Kansas emphasizes industrial promotion and advertising. New York, Pennsylvania, Massachusetts, and New Hampshire have for years provided business and industries with accurate information on economic trends, while continuing their larger programs of comprehensive state planning and development.

UNEMPLOYMENT COMPENSATION

In 1945, the states recognized their responsibilities not only for employment but also for providing, if necessary, for unemployment.

Maximum unemployment insurance benefits were increased by 25 states in 1945—Alabama, Connecticut, Indiana, Iowa, Kansas, Maine, Massachusetts, Michigan, Nebraska, Nevada, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, Texas, Utah, Vermont, Washington, and West Virginia.

Maximum duration benefits were lengthened by 28 states in 1945—Connecticut, Delaware, Illinois, Indiana, Iowa, Kansas, Maine, Maryland, Massachusetts, Minnesota, Nebraska, Nevada, New Hampshire, New Jersey, New York, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Dakota, Texas, Utah, Vermont, Washington, West Virginia, Wisconsin, and Wyoming.

Waiting periods between job dismissals and benefit payments were reduced in six states—California, Maryland, Nevada, New York, Oregon, and Pennsylvania. Maryland eliminated the waiting period entirely. Almost a third of the states extended the coverage of their unemployment compensation systems to include persons working for an employer of one or more, and the majority extended coverage to employers of eight or more.

As a result of this legislative action liberalizing unemployment compensation, the states provided against post-war unemployment, to the following extent: (1) weekly benefit maximums of $20 a week or more prevail in 27 states in which approximately 79 per cent of all covered workers in the nation are employed; (2) 13 states, including four which held no regular legislative session in 1945, have a weekly maximum of less than $18. However, less than 10 per cent of all covered workers are in these states; (3) maximum benefit duration of 20 or more weeks now prevails in 33 states in which 80 per cent of all covered workers are employed.

The financial condition of state unemployment compensation reserve funds has improved materially, and at the end of 1945, the total was nearly $7,000,000,000 as compared with less than $2,000,000,000 in 1941.

AVIATION

The anticipated heavy industrial expansion of aviation led a great majority of the states, in 1945, to prepare themselves for active participation. Specific recommendations for the establishment of state aviation commissions, air codes, and air zoning laws, and for the general improvement of aviation facilities, as made by the governors of most of the 44 states having legislatures in regular session in 1945, were incorporated into law.

The total number of states with administrative agencies to deal exclusively with aviation matters was raised to 39, in 1945. Enabling legislation was passed in most states to permit states and localities to participate in a Federal-state airport construction program.

Authorization for municipalities to own, construct, or operate airports was given by six states in 1945—Pennsylvania, Nebraska, Washington, Arkansas, Minnesota, and Florida. Nebraska's is typical of many of these laws in that it gives municipalities the right to acquire, construct, maintain, and operate airports and other air navigation facilities and to issue bonds and levy taxes for their support.

Technical services for airport development will be provided municipalities in Montana and West Virginia, in the former through a newly created state aviation commission.

The North Carolina, as well as the Nebraska law, provides clear authority for municipalities to exercise the power of eminent domain in condemning land for the construction of airports and landing strips.

Minnesota enacted one of the most comprehensive state aviation codes, during its legislative session of 1945.

Twelve states passed zoning laws governing the construction and location of structures within airport hazard areas—Florida, Illinois, Iowa, Nebraska, New York, North Carolina, Oklahoma, Pennsylvania, Tennessee, Utah, Washington, and Wisconsin.

A majority of these laws took the form of the Iowa legislation which allows political subdivisions to adopt airport zoning regulations to limit the heights of nearby structures and to eliminate other hazards.

HIGHWAYS

A large volume of legislation affecting highway construction was enacted by the state legislatures, in 1945. California, Indiana, New Jersey, and New York enacted important measures with respect to limited access highways, and many legislatures supplemented previous highway legislation to enable their states to participate fully in the Federal-aid highway act of 1944.

HOUSING, HEALTH, EDUCATION, WELFARE

While the legislative-administrative emphasis among the state governments in 1945 was placed upon the returning veteran and state programs designed to bridge the gap from war to a peacetime economy, many states prepared the way during 1945 for extending their governmental activity in housing and the social services.

Arkansas, California, Colorado, Connecticut, Florida, Illinois, Indiana, Minnesota, New York, Pennsylvania, and Tennessee enacted legislation, in 1945, to eliminate blighted areas and to assemble land public housing projects. The new California urban redevelopment law permits cities to condemn blighted areas by eminent domain and to secure their rebuilding by private enterprise according to plans developed by the city. Pennsylvania cities were authorized to create redevelopment authorities and to establish housing projects. Minnesota legislation provided for the eradication of slum areas through the formation of neighborhood redevelopment corporations. Private agencies, including insurance companies, are authorized to acquire through condemnation proceedings land necessary to undertake a project after 60 per cent of the property concerned has been purchased.

Housing legislation was enacted by California, Georgia, Illinois, Nevada, New York, Pennsylvania, Tennessee, and Washington. Illinois and Pennsylvania authorized insurance companies to invest up to ten per cent of their assets in housing either by the direct operation of housing projects or through loans to housing agencies.

HEALTH

The health needs of the nation were brought sharply into focus during the war years by the high level of Selective Service rejections. The states, during the year, further developed the trend of 1943-1944 in re-examining and re-evaluating their public health programs. Governors and legislatures in state after state set specially constituted commissions to work surveying existing facilities and services, assessing post-war problems, and developing legislative-administrative programs for meeting them.

During 1945, new health laws were enacted in most of the states; many old laws were tightened and extended. In some cases, state health departments were completely reorganized, expanded, and placed upon firmer footings.

Maine, North Carolina, Kansas, and Wyoming were among the states which completed or initiated surveys of their medical care needs and prepared programs for future expansion.

Rhode Island inaugurated, in 1945, what is described as the first program in the United States for compulsory insurance to cover cash sickness compensation for wage earners. During the same period, North Carolina extended the coverage of the local units of its State Health Department to 95 per cent of the total population. In Kentucky, new health units brought

90 per cent of the population under full-time health services.

In addition to the reorganizations of state health departments proposed legislatively in Colorado and effected in Illinois, South Dakota, California, and Washington, organization of new cooperative agencies at the county and city level, with the states providing administrative liaison and financing, continued in many states of the Union.

WELFARE

Under the Social Security programs, old age assistance and aid to dependent children were increased by more than a dozen states, during the 1945 legislative year.

Old age assistance may be increased in Arkansas, Delaware, Michigan, Minnesota, Wyoming, Texas, Utah, Vermont, Colorado, and Washington. Aged persons in Delaware now may receive $30 monthly under legislation raising the maximum to that figure from $25 per month. Wyoming raised its maximum to $50 a month; Utah increased maximum benefits from $30 to $40; Washington put old age assistance on the basis of need and provided $50 minimum for persons over 65 who have no other income. Vermont raised maximum old age benefits from $30 to $40 for individuals and from $45 to $60 for couples.

Allotments for dependent children may be increased in New York, Iowa, South Dakota, Nebraska, and Minnesota. New York extended its aid to the dependent children program, placing aid on a basis of need. Aid will be given to the parent or other relative of a child under 16 or of a minor between 16 and 18 if the help is judged necessary. Iowa has increased the minimum aid to dependent children from $15 to $18 a month for the first child in a family, from $10 to $12 a month for each additional child, and from $50 to $75 a month per family.

Some 1,200 families benefited almost immediately from increased aid to dependent children voted by the South Dakota legislature in 1945. Maximum aid was boosted from $18 to $30 a month for the first child with payments for additional children remaining at $12. Need, rather than the present $18 a month ceiling, will govern maximum assistance to dependent children in Nebraska. Colorado also placed aid to dependent children on the basis of need, eliminating the ceiling.

ANTI-DISCRIMINATION LAWS

Laws designed to prevent discrimination in employment because of race, color, creed, or national origin were passed in New York, New Jersey, and Indiana during 1945. New Jersey and Utah also enacted more general anti-discriminatory legislation; in New Jersey, a series of six laws was passed banning racial and religious discrimination in schools, municipal hospitals, hotels, and places of amusement.

New York led the country in establishing the first state fair employment practices commission, designed to prevent an employer for refusing to hire, or to discharge, or to discriminate against any individual with regards to terms of employment or compensation because of race, color, creed, or national origin. The law also prohibits exclusion, expulsion, or discrimination by a labor organization against any individual for these reasons. For an employer or employment agency to make any inquiry in connection with prospective employment which bears directly or indirectly on matters of race, color, or national origin is also outlawed.

Complaints of violation will be received and investigated by the commission of five set up by the law. The commission may issue cease and desist orders. If such orders are not complied with, it may appeal to the Supreme Court for an order requiring obedience, a violation of which may be punished as contempt of court.

The Indiana law declares the right of opportunity to obtain employment without discrimination because of race, color, creed, national origin, or ancestry. It authorizes the commissioner of labor to make studies of discrimination and to recommend to the general assembly plans and legislation for its elimination.

Other anti-discrimination bills were passed by the state legislatures during 1945; an Iowa bill extends the law prohibiting discrimination against men in military uniform to women in military uniform; a Maryland bill equalizes salaries of Negro school supervisors.

STATE FINANCE AND TAXATION

The past five years have been "Golden Years" for most state treasuries: total state revenues rose from $3,300,000,000 in the fiscal year 1940, to $4,100,000,000 in the fiscal year ended June 30, 1945, with these figures excluding unemployment compensation contributions.

State income taxes, especially those on corporations, and general sales taxes provided the lion's share of the 24.2 per cent increase. Total state tax collections would have increased even more if commodity shortages and rationing had not brought about declines in revenue from several important revenue sources, especially motor vehicle fuel taxes and related license fees.

Nineteen of the 34 states which tax personal or corporation income altered their tax laws during the 1945 legislative sessions.

Personal income tax reductions were extended by two states, New York and California, and a tax increase was extended by the Commonwealth of Massachusetts. New York extended the 25 per cent reduction on personal incomes and net capital gains. The reduction in personal income tax rates enacted in California in 1943 was extended for another two years. Massachusetts extended through 1948 the ten per cent additional income tax.

Six states granted additional tax deductions under the terms of new legislation — Colorado, New York, North Dakota, North Carolina, Oregon, and South Carolina.

Corporation taxes were extended by New York and Pennsylvania. New York extended the 6 per cent business corporation franchise tax to April 30, 1947. Pennsylvania extended the 15 per cent credit on the amount of corporation income taxes to be paid for years beginning before Jan. 1, 1947.

A tax was levied on the net income of buildings and loan and savings and loan associations by Arizona. The tax rate of 5 per cent applies to income including interest on bonds and other securities issued by the Federal Government, the state, or any political subdivision.

Refund of corporation taxes where losses are incurred through contract renegotiation by the Federal Government is allowed by Oregon and Maryland. Pennsylvania imposed a 4 per cent net income tax on cooperative agricultural associations for the privilege of doing business or having capital stock or property employed in the state.

Revenue collections from state sales, gas, and tobacco taxes—three principal sources of state income—swung upward considerably during 1945.

A tendency toward new or higher taxes appeared to prevail, during 1945, with regard to excises. Motor fuel taxes were increased in three states—Idaho, Iowa, and Oklahoma; cigarette taxes were adopted in Idaho, and subject to a referendum in Oregon. Indiana and Utah increased their beer taxes, while Oklahoma raised its soft drink tax.

CONCLUSION

Early in the war, an extensive state tax and fiscal policy program was urged upon the states by their joint agency, the Council of State Governments. This program proposed that the states adopt a tax and fiscal program that would enable them to do their full part in solving the problems that were sure to confront the country after the war.

It was recommended that the states maintain tax rates at existing levels; that every effort be made to conduct the operations of state governments during the war years in the most efficient and economical manner; that state debt be retired as rapidly as possible; that state surpluses be allowed to accumulate in order to enable the states to initiate reconstruction projects and for the preservation of these surpluses by investment in government bonds, thereby contributing also to the campaign against inflation.

This program was widely accepted by the state governments with the result that the states are in a better financial condition today than at any other time during the past half-century. During the war years they reduced their gross indebtedness by more than 26 per cent; the states and their localities have surplus funds totaling in excess of $5,500,000,000; many of the states have improved their tax systems and have greatly expanded and improved budget administration and methods of financial control.

The states, as a whole, are prepared, legislatively, administratively, and financially, for the period of post-war reconstruction and development.

NATIONAL AND INTERSTATE RELATIONS OF THE STATES

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TRENDS IN FEDERAL-STATE RELATIONS

Perhaps it is symbolic that Federal agencies, during the depression period, at times lobbied in state capitols for the enactment of state legislation which they deemed desirable, whereas the states are now active at Washington in seeking to shape Federal legislation which affects the role of state governments. This article in previous years has pointed out that certain salient features have characterized the recent trend of Federal-state relations in the United States. These will be briefly summarized here.

In the first place, the United States Supreme Court has tended to retreat from its traditional role as the umpire of the Federal system in that the trend of judicial interpretation of the Constitution has been toward the elimination of any broad constitutional check upon the extension of the functions of the National Government. Second, Congress has increasingly become the forum for the determination of the relative roles of the nation and the states.

In the third place, the state governments, made aware by the pressure for centralization and better organized as a result of the interstate movement of recent years, have, through the Council of State Governments and a more effective Governors' Conference, turned to Congress to present their case. Moreover, those organizations have become steadily more effective as media for presenting the position of the states at the nation's capitol with the Council now maintaining an office at Washington and through its *Legislative Bulletin* informing state officials of Federal legislation which affects the states.

Fourth, the Council's policy in Federal-state relations has been in large part to seek the fashioning of a cooperative pattern as between all levels of government and to channel the administration of new programs through the extant machinery of government-Federal, state and local, thus avoiding that establishment of new governmental organizations parallel to the extant structure which complete centralization of any activity usually entails.

Fifth, while the tendency toward cooperative federalism was already apparent in the United States along with the marked trend toward centralization, the activities in recent years of the Council of State Governments have served to emphasize the tendency toward cooperative government.

Sixth, as a concomitant of the Council's activities in Federal-state relations and hastened to some degree by the needs of the war period, new and more institutionalized channels of Federal-state relationships have been developed.

FEDERAL-STATE ISSUES BEFORE CONGRESS

There are many issues before the present Congress which are of importance to the states. It is notable that, like its predecessor, this Congress in the determination of many of these contested issues generally favored what might be called the states' point of view. This does not mean, of course, that the issue in any instance was confined to the question of the relative role of the national and state governments. Some interests and pressure groups, for reasons and purposes of their own, favored the state viewpoint just as other interests and pressure groups favored complete Federal administration. Nor does the fact that the states in some instances pressed their position on certain issues mean that there will be a constant and damaging conflict between the states and the National Government as to the division of functions in the Federal system. Rather, the determination of these issues may represent the growing pains of a more cooperative federalism.

STATE ADMINISTRATION OF UNEMPLOYMENT INSURANCE

One of the most noteworthy storms in the 1945 session of Congress revolved about proposals with respect to unemployment insurance which state administrators felt would impair state control of administration in that field. Since the enactment of the Federal Social Security Act of 1935, insurance against unemployment has been a joint Federal-state responsibility.

The federalization of unemployment insurance has long been urged by proponents of centralization, and legislation to that end has been introduced in Congress. The states on their side have been adamant that unemployment insurance continue under state administration in a Federal-state cooperative pattern. The states, in the past decade, have expanded and extended their employment security systems beyond the area of Federal assistance. The Federal-state unemployment compensation system, provided by the Social Security Act of 1935, has also been expanded and extended, primarily on the initiative of the states.

President Truman's proposal for supplementary Federal emergency benefit payments to insure minimum standards for the weekly rate and duration of unemployment benefits ran into serious opposition in Congress and has not been enacted. In view of the tempest these proposals evoked, it seems unlikely that Congress will consider the major step of federalization in the immediate future.

In the meantime, on the recommendation of the Council of State Governments, the states, in the 1945 legislative sessions, extended and improved their systems of unemployment compensation. Even the Social Security Board, long an advocate of federalization in this field, recognized the progress made by the states. The *Social Security Bulletin* of July 1945 commended the action of the state legislative sessions of that year.

Similarly, the Congress has favored the states' position in the battle over the date when the employment offices should be returned to the states, even to the extent of attaching a rider to an appropriation bill which was then vetoed by the President. These employment offices were loaned by the states to the National Government during the war period on the request of the President with the understanding that, at the proper time, the employment offices would be returned to the states. The Governors' Conference has for some time been concerned with the return of these offices, and in its 1945 meeting urged their immediate return. The President has urged that the Federal Government retain the employment service during the emergency period of transition from war to peace. The battle is still raging but it seems probable that in any event the employment services will eventually be returned to the states. One of the principal arguments used against the states is that, under state administration, there is no provision for integration of the employment services of the various states.

Nor did Congress provide for Federal coverage with respect to unemployment insurance of maritime workers. In fact, the states, through the Interstate Conference of State Employment Security Agencies, have in the meantime been effectuating state coverage of these workers. The interstate reciprocal agreement relative to the coverage of maritime workers has now been signed by Alabama, Virginia, California, Nebraska, and New York. A separate agreement has been established for the Great Lakes states to cover maritime employment on those waters.

SUBMERGED COASTAL LANDS

A bitter battle in an atmosphere of charges and counter-charges has been waging with respect to the ownership of submerged coastal lands following the assertion by Federal officials that the Federal Government has title to such lands. The states claim that a long line of Supreme Court decisions have upheld their title to these submerged lands. The Federal Government asserts that none of these cases rested on the specific issue of ownership. The Attorney-General of the United States has filed against California on this issue, with the result that 46 states oppose the Federal claims. The battle was carried to Congress where the House of Representatives passed legislation which would give the states clear title to land from the high water mark to a line three miles at sea. This legislation is now pending in the Senate.

INSURANCE

In the *United States vs. Southeastern Underwriters Association*, the Supreme Court departed from its long line of decisions, going back to 1868, to the effect that insurance was not commerce. The Court in this case held that insurance was commerce and thereby opened the insurance field to regulation by the Federal Government. The decision immediately raised the question for the states as to what extent state regulation and taxation of insurance was affected by certain existing Federal laws based on the commerce clause, notably the anti-trust laws.

It is significant that, under the leadership of the National Association of Insurance Commissioners, the states turned to Congress to seek legislation that would preserve the extant state system of regulation. In response to this request, Congress, early in 1945, enacted legislation, which was signed by the President, "to express the intent of Congress with respect to regulation of the insurance business." The congressional conference committee in its report stated it was the intent of the legislation "that a moratorium be granted to the insurance business from the operation of the Sherman Act, the Clayton Act, the Federal Trade Commission Act, and the Robinson-Patman Anti-Discrimination Act until January 1, 1948, leaving the taxing and regulatory powers of the several states fully protected."

The act provides: "No act of Congress shall be construed to invalidate, impair, or supersede any law enacted by any state for the purpose of regulating the business of insurance, or which imposes a fee or tax upon such business, unless such act specifically relates to the business of insurance . . ." After Jan. 1, 1948, the Federal laws mentioned above shall be applicable to the business of insurance to the extent that such business is not regulated by state law. The states are now seeking to expand and perfect their regulation of insurance, with committees of the Council of State Governments, the state Attorneys-General, and the National Association of Insurance Commissioners working on the subject.

WATER RESOURCES

The decisions of the Supreme Court in the Red River and New River cases some years ago seemingly left few constitutional limits to the power of the Federal Government with respect to the regulation of streams. Flood control proposals, which seemed to open the way for complete Federal control of waterways, met with state pressure in the Congress with the result that the 1944 Flood Control Act and the 1945 Rivers and Harbors Act were amended to recognize state interests. The amendment is in effect a declaration that the policy of Congress respecting the interests and rights of the states and their interests in water utilization and control shall be recognized, preserved, and protected, that the plans of interested Federal agencies for water resources development shall be integrated, and that the states through appropriate state agencies, designated by their respective governors, shall be consulted and given an opportunity to have their comments submitted to Congress in the formulation of any plan of a Federal agency for river basin development.

Similarly, legislative proposals before the Congress for Federal action in the abatement of pollution have made little headway. In order to formulate a definite program of state action with respect to water resources, the Council early in 1945 established a Committee on Water Resources. The committee tentatively recommended that future Federal legislation in this field should incorporate principles similar to those set forth in the 1944 Flood Control Act and the 1945 Rivers and Harbors Act, that the integrity of state water laws and freedom of compact should be preserved and maintained, and that the states should prepare now to carry out their responsibilities under such a national policy.

Meanwhile, an inter-agency committee has been set up in the National Government. The Council's Committee is now studying the question of the advisability of legislation creating a permanent Federal inter-agency committee, with appropriate non-Federal participation, to exercise full responsibility for coordinating the Federal water development programs, and to cooperate with state and interstate agencies. It is noteworthy that the states are now formulating a program of state action to meet the water resources problem. In this connection, it is significant that Pennsylvania, in 1945, enacted a broad program of legislation for pollution abatement.

AVIATION

There was wide adoption by the states during the year of the recommendations of the Council of State Governments with respect to aviation in the form of measures to establish state aviation agencies, provide for airport zoning, and in those states where it was needed, amend condemnation procedures in relation to airports. In view of state action, it seems that the states will have a larger share of the regulation of aviation than had been at first envisaged, although it is self-evident that the major share of regulation will be national in character.

The major issue before the Congress with respect to Federal-state relations in this field is the determination of the question as to whether the Federal grants-in-aid for airports shall be channelled through the state governments in accordance with the established pattern of previous national grants-in-aid or the Civil Aeronautics Administration shall be empowered to deal directly with local governments in the development of a national airport system. On one side of this issue is the Council of State Governments, on the other side is the National Conference of Mayors. In the congressional tug of war, the Senate enacted a measure which embodied the state viewpoint in that it provided for national-state cooperation in the development of a system of airports; the House enacted provisions for direct Federal-local cooperation but only after a long drawn out fight and a very close vote in the defeat of an amendment favored by the states. The two bills are now in conference committee.

The decision with respect to airports is extremely important in itself but even more important is the principle involved, since it may have a profound effect on American intergovernmental relations in many other fields of activity. The principle once accepted might also be applied in possible future Federal grants-in-aid for public works, health and hospitals, and education.

OTHER FEDERAL-STATE ISSUES

There are some other Federal-state issues of which brief mention should be made. It would seem probable that the Federal-state National Guard system is to be retained. The Council of State Governments and the National Association of Attorneys-General secured the passage of legislation in Congress to require the Office of Defense Transportation to pay taxes on truck lines taken over by the Federal government.

Congressional legislation providing for Federal intervention in the field of forestry regulation made little headway. The Council's Committee on Forestry in an effort to initiate a state program recommended to the states among other things that they expand state forest holdings and that the states enact legislation for the regulation of cutting practices on private lands. Maryland, Massachusetts, and California have enacted the model regulatory legislation recommended, while Washington and Oregon have enacted somewhat similar measures. New York is working on a cooperative forestry practices act, while some states are expanding their state ownership of forest lands and their reforestation programs.

That the state governments will be interested in projects of international organization which may affect their functions is indicated by the Interstate Oil Compact Commission's opposition to the original proposal for an Anglo-American oil treaty, the current negotiation with the Great Lakes states relative to the Great Lakes Fisheries Treaty, and the action of the Atlantic States Marine Fisheries Commission in insisting that the states should be consulted in such matters. It is interesting to note that the establishment of a United Nations Organization site will probably require action by the state in which the headquarters are located.

THE STATES AND THE STRATEGY OF INTERGOVERNMENTAL RELATIONS

As has been pointed out in previous issues, the position of the states in the Federal system was not weakened but probably strengthened during the war period. In addition, the states are in the strongest financial position they have attained in the last 50 years. The Executive Director of the Council, reporting to the Board of Managers in November 1945, points out that "during the war years they (the states) have reduced their gross indebtedness by 25 per cent and the states and their localities have surplus funds totaling approximately $5,000,000,000. In addition, many states have improved their tax systems and have greatly expanded methods of budget administration and control." It has long been pointed out that expansion of activities of the National Government did not bring a contraction of state government but, rather, expansion at the national level paralleled by a growth of the functions and activities of the state governments.

CHANNELS OF NATIONAL-STATE COOPERATION

One of the notable accomplishments of the defense and war cooperation between the national and state governments was the establishment of a channel of communication between the two levels of government to implement cooperative action. This long-needed cooperative machinery has been developed over the past five years by the Council of State Governments and the U. S. Department of Justice through its Federal-State Relations Section. The procedure established has proven very effective. The Federal-State Relations Section receives proposals which Federal agencies wish to call to the attention of the states. These proposals are considered by the Council's Drafting Committee of State Officials which may ultimately clear them for recommendation to the states by the Council of State Governments. The Council of State Governments receives from its special study committees state proposals requiring cooperation by Federal administrative agencies and transmits them to the Federal-State Relations Section of the Department of Justice for reference to the appropriate Federal agencies.

The Chief of the Federal-State Relations Section states that the 1945 program of recommended state legislation, consisting of 22 proposals arising from both state and Federal levels, "received from the states perhaps the most favorable consideration given to these programs since their initiation in August, 1940." The measures recommended in 1945 included five acts relating to the protection of the armed forces and their property, legislation relating to the enrichment of white bread and flour, and the Airport Zoning and Condemnation Acts, the Second Injury Fund Act, designed to facilitate the employment of returning veterans and other disabled persons in the light of state workmen's compensation laws, the State Veterans' Service Officer Act, the Purchase of Federal Surpluses Act, a State Plane Coordinates Act, and others. In addition, there were several more general recommendations relating to child labor, crippled children, and food, drug, and cosmetic legislation. A State Aeronautics Department Act was developed outside the regular program by Federal and state officials working through the Council of State Governments and the Federal-State Relations Section. In almost every instance these proposals were enacted by a number of states.

The program for 1946-47 adds to previous recommendations three acts relating to the inspection and marketing of agricultural products which came out of conferences on this subject called by the Council, a Harmless Flight of Aircraft Act, and others. In addition, there were a number of more general recommendations for the improvement of state soldier voting laws and state adoption laws. One significant general recommendation of the Board of Managers of the Council of State Governments urged that, in the interest of the development of state responsibilities, the states rely as little as possible on the Federal government for financial assistance. Another important recommendation was that the legislatures of the several states review all war emergency legislation in order to determine which measures should be continued on a permanent basis, which should be adopted for use in a future emergency of some kind, and which should be repealed. State officials have found that many of these measures have a peacetime utility.

Intergovernmental cooperation in the United States reached a new high during the recent war. In contrast to the spasmodic and unorganized development of state war legislation in the First World War, the cooperative machinery described above made possible uniform enactment of specific proposals. It is notable that the recent Federal-state programs of recommended legislation include many measures for permanent peacetime state regulation and administration. There seems to be no doubt that the machinery that has operated so effectively during the war period will not be abandoned in the peace. Indeed it is more likely that it will develop further and that it may eventually include a link of some kind to Congress. Nor are the Federal-state cooperative efforts limited to legislation. The Council is working closely with the Veterans Administration to coordinate Federal and state activities, and a committee of state purchasing officers is developing procedures and methods of operation which will enable the states to fill their needs from Federal surplus property. If the cooperation of wartime is continued in the peacetime relations of the two levels of government, further progress will be made towards a cooperative federalism.

DEVELOPMENT OF INTERSTATE COOPERATION

It seems clearly evident that the progress which is being made towards a new and more closely integrated pattern of intergovernmental relationships in the United States has received a major impetus from the existence and the activities of the Council of State Governments. This machinery of interstate cooperation, as established by the parent American Legislators Association in 1935 has as its basic units, the state Commissions on Interstate Cooperation, the official negotiating agencies of their respective governments in National-state and interstate relations. Generally, these bodies follow the pattern originally envisaged in that their membership includes representatives of both houses of the legislature and of the executive branch in order to secure integration within the state government in its negotiations with other governments. Limited at first principally to the states of the Northeast, the use of such agencies spread gradually to other states, until in 1945, 46 states had established cooperation commissions. Idaho and North Dakota, the two remaining states, are cooperating with the Council through the medium of committees appointed by their Governors.

The Council has become completely self-supporting with appropriations from every one of the 48 states and is now expanding its facilities to meet the increasing demands upon it. It recently agreed to act as the secretariat for the new association of state budget officers. While the original plans of the Council laid emphasis upon regional offices and the regional office in New York has amply demonstrated the value of such agencies, the tendency in the future may very well be to work from the present offices in Chicago, New York, Washington, and San Francisco, with a possible additional office to serve the South, instead of a complete system of regional offices.

INTERSTATE COMPACTS

There were some noteworthy developments in the use of interstate compacts during 1945. State participation in some of the more important compacts was enlarged. Montana, Florida, West Virginia, and Alabama joined the Interstate Oil Compact to make a total of 17 states that have ratified that instrument. Connecticut and Florida ratified the Atlantic States Marine Fisheries Compact, leaving North Carolina as the only state of the 15 Atlantic Coast states that has not entered the agreement. Oklahoma became the 39th state to ratify the Interstate Parolee Compact, which has been ratified by the largest number of states of any compact in the history of the Union.

This compact has successfully met a long-felt need for effective control over probationers and parolees as they move from one state to another either before or during their terms of supervision. However, in the years since it was adopted questions of application have arisen, and a need for a degree of uniformity in interpretation and administration has manifested itself. Under the terms of the compact the Governor is called upon to appoint an official administrator whose duty it is to administer the compact for the states. These official administrators recently formed the Interstate Compact Administrators Association. A committee of that body will act as a clearing house for all matters that may arise, and in order to secure uniformity in procedure and practice shall advise administrators of the committee's interpretation or opinion respecting any point in question. The committee will consider changes or additions to existing rules, regulations and forms with respect to the administration of the compact, and upon ratification by three-fifths of the compacting states shall put such changes into effect. This is an interesting development in that it is an organized interstate effort through state administrators to improve the operation of an interstate compact improving administrative practices as to its subject matter.

One of the criticisms usually made of the compact method is that a compact is difficult to amend because of the necessity of action by the legislatures of the participating states and ratification by the Congress and accordingly tends to be inflexible. It is significant that in 1945 two compacts were amended seemingly with no difficulty. New York and Vermont amended their compact with respect to the Lake Champlain Bridge Commission, while Ohio and Pennsylvania amended the Pymatuning Lake Compact of 1937.

Similarly, there would seem to be some doubt as to the validity of the argument that legislatures are adverse to entering into these agreements because they are more binding than an ordinary statute. For some years, Pennsylvania had refused to ratify the Ohio River Compact and the Potomac River Basin Compact which are interstate compacts for the abatement of pollution in those rivers. However, at the same time, Pennsylvania refused to enact legislation for the control of pollution in the Delaware analogous to that passed in the other Delaware River states. In 1945 Pennsylvania enacted both the statute and the two compacts when the legislature reversed its previous position on pollution legislation and enacted a broad program of abatement measures. This would seem to indicate that objection to subject matter is more important than objection as to the method involved.

With the adherence of Pennsylvania, state membership in the Potomac River Basin Compact is complete. While with ratification by Pennsylvania a sufficient number of states have now ratified the Ohio River Compact to put that instrument into effect, several states conditioned their ratification upon that of Virginia. At the present time it does not seem likely that Virginia will ratify during her 1946 legislative session. This is extremely unfortunate since Virginia contains less than three per cent of the land in the basin and is reputed to have been included in the original group of participating states for the sake of securing complete adherence rather than because Virginia pollution constituted a real problem for the basin. It may be necessary to secure a withdrawal of the condition of Virginia ratification by the stipulating states in order to consummate this long delayed compact.

FISHERIES

One of the most noteworthy compacts of recent years is the Atlantic States Marine Fisheries Compact, ratified by 14 coastal states, which established the Atlantic States Marine Fisheries Commission comprised of three representatives from each compacting state. This body, authorized to recommend measures for the preservation of the fisheries to the governments of the cooperating states, has operated in practice chiefly through the medium of regional panels. Since its establishment the Commission has made considerable progress with respect to its uniform acts relative to certain species of fish and particularly in securing the establishment by participating states of adequate systems of state catch statistics. It has also been instrumental in studying and formulating programs for better sanitation in the fisheries industry and for more intensive conservation education with emphasis on the fisheries in the coastal states.

During 1945, the Commission sought to solve several of the outstanding and historically rooted interstate fishery disputes on the Eastern seaboard. Maryland and Virginia have for years been warring over the blue crab of the Chesapeake and the oysters of the Potomac. Negotiations conducted by the Commission with respect to the blue crab failed to make much progress in the face of an almost complete break-down by the fishery biologists of all previous recommendations of those biologists. Under the historic compact of 1785 only concurrent statutes of the two states as to Potomac fisheries have validity. Maryland has for some years refused to concur in laws of Virginia which Maryland viewed as destructive of the oyster fisheries of the river with the result that enforcement of those provisions which were concurred in has been difficult and ineffective. In 1945 the situation became so acute that the governors of the two states sought to find a way out of the controversy. Maryland passed legislation to appoint a commission to revise the Compact of 1785 but commissioners had not been appointed as the year closed, nor had Virginia acted on the proposal.

In the meantime it is indicated that the representatives of the two states on the Atlantic States Marine Fisheries Commission have agreed on a proposal that would establish a joint state authority to govern the oyster fisheries of the Potomac either by amendment of the compact of 1785 or through concurrent legislation by the two states under the authority of that compact. This agreement is, in itself, a notable achievement in view of the long history of the dispute and the virulence of local feeling.

INTERSTATE COMMISSIONS

With the addition of the four new states that ratified the Interstate Oil Compact in 1945, the 17 member states of the Interstate Oil Compact Commission now account for 80 per cent of the oil and 90 per cent of the natural gas production of the nation. While the Compact Commission has no power to pass, or to compel any state to pass conservation laws, it is notable that, since its adoption in 1935, state laws for the conservation of oil and natural gas have steadily improved and increased. In 1945, Alabama, Florida, North Carolina, and Georgia enacted effective conservation laws based on the recommendations of the Interstate Oil Compact Commission, while Oklahoma improved its laws by two important amendments.

The Interstate Sanitation Commission, created by compact among the states of New York, New Jersey, and Connecticut, continues to make progress in the abatement of the pollution problems of New York Harbor and adjacent waters. The Interstate Commission on the Potomac River Basin, established by Maryland, Virginia, West Virginia, Pennsylvania, and the District of Columbia, is formulating plans for the zoning of the Potomac River Basin into its areas of principal water use and establishing standards of quality for the waters in those areas.

STATE CONSTITUTIONS, REFERENDA, AND INITIATIVES

By Edwin O. Stene

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GENERAL

The year 1945 was an off-year for elections; hence there were relatively few constitutional and statutory changes by popular vote. Not since 1939, however, had as many states experienced direct popular participation in law making during years between congressional elections. Twelve states voted on new constitutions, on constitutional amendments, and on legislative measures during the year. On the other hand, the number of questions voted on was the smallest in 14 years. This drop can be explained by the fact that Georgia, which accounted for more than half of the constitutional amendments in previous odd numbered years, voted this year on but one question: a new constitution.

REVISED CONSTITUTION IN MISSOURI

Two states adopted new constitutions in 1945. The revisions were, in the main, conservative. Yet the experiences of Missouri and Georgia provide an affirmative answer to the question of whether general constitutional revision can be successfully accomplished.

In 1942, under a constitutional provision for a vote on the question every 20 years, the people of Missouri called for a constitutional convention. Delegates were elected in 1943, and the convention completed its work late in 1944. At a special election on Feb. 27, 1945, the new constitution was adopted by a vote of almost two to one.

The bicameral legislature was retained, despite the fact that the advocates of unicameralism had played an important part in calling for the convention. However, new provisions were made for the apportionment of legislative seats, and safeguards were provided against invisible government by committees. Hereafter committees are required to keep public records of votes on all bills before them, and one-third of the members of either house have authority to take a bill from a committee to the floor. In addition the legislative research committee was given constitutional status.

Administrative consolidation is a major feature of the new Missouri constitution. Fourteen departments under the governor will replace 72 agencies that had been established under the old constitution. A single revenue department replaces nine tax assessment and collecting agencies, and a state director of education selected by a bipartisan board of education will replace the elected state superintendent of schools. A combined department of public health and welfare is a somewhat novel consolidation.

The non-partisan court plan, which had been established by popular initiative in 1940 and retained over legislative opposition in 1942, is retained. Under this plan the judges are appointed originally by the governor, but they must stand for re-election by non-competitive vote at the expiration of each term. Another change in the judicial department provides for magistrate courts in place of justices of peace. The magistrates and probate judges must be lawyers. Also the state supreme court is empowered to make rules of practice and procedure for all courts of the state, and to transfer judges temporarily from one court to another.

The uniform general property tax has been abolished. For tax purposes, property in Missouri will be classified hereafter into three categories: real property, tangible personal property, and intangible personal property. In addition, the legislature is authorized to encourage reforestation of rural lands not suited for farming and reconstruction of blighted areas in cities by granting tax relief for a period of not more than 25 years.

The right to draw up and adopt home rule charters has been extended to all cities of 10,000 population or more, and also to counties with populations in excess of 85,000. The general assembly is directed to divide counties into no more than four classes. Alternative forms of government may be provided for the counties of any particular class, but no laws may be enacted which are not applicable to all counties of a class.

The new constitution of Missouri is about 11,000 words shorter than the one which it replaced. Yet it is considerably longer than the Model State Constitution drawn up by a committee of the National Municipal League.

REVISED CONSTITUTION IN GEORGIA

The constitution adopted by the people of Georgia on Aug. 7, 1945 is the eighth in the state's history. A primary object of this latest revision was to avoid the necessity of enacting local legislation by constitutional amendment. As mentioned above, Georgia has accounted for more than half of the state questions voted on in recent odd numbered years. In that state alone 26 constitutional amendments were submitted to the electorate in 1937, 33 in 1939, 70 in 1941, and 28 in 1943. A large majority of those amendments were local in character.

By the new constitution, home rule is provided for cities and counties. These units of local government are permitted to make zoning regulations and to issue bonds within specified limits when authorized by local elections. The legislature is empowered to provide methods for the merging of county and city governments.

Unlike the Missouri constitution, that of Georgia makes no provision for administrative consolidation. Instead, the existing constitutional offices were retained, including the fish and game commission, the commissioner of agriculture, and the commissioner of labor, all of which had been given constitutional status in 1943. In addition, a veteran's service office was created. An effective budget system was established, however.

On the political side, on the other hand, a number of progressive steps were taken. The poll tax was eliminated as a prerequisite for voting, as were also certain other discriminatory suffrage provisions. The 18 year voting age was retained. Special tax exemption for favored corporations are no longer permitted.

Other changes in Georgia include an increase in the membership of the state supreme court from six to seven in order to avoid deadlocks, and the establishment of an office of lieutenant governor.

CONSTITUTIONAL AMENDMENTS

Twenty-one constitutional amendments were adopted by popular vote in seven states, whereas three proposed amendments were defeated. In addition an amendment to exempt war veterans from the poll tax requirement for voting for a period of three years after the war, was adopted by a constitutional convention in Virginia without subsequent popular vote. The call for the convention had been approved by popular vote, however. Three amendments proposed by the Connecticut legislature were submitted to the town meetings and may not be voted on in all communities of the state until 1947. Of the 169 towns, 148 had voted on the amendments in 1945.

LEGISLATIVE

Proposals to increase the compensation of legislators again came before the people in two states, but, as in past years, these proposals met with considerable opposition. The voters of Texas refused to grant an increase in legislative pay. The other pay-increase proposal, an amendment to increase the compensation of Connecticut legislators from $300 to $600 a term, still awaits consideration in a few towns, as does also a proposal to alter the time and duration of legislative sessions in that state. A New York amendment permits the division of large towns in setting up districts for the election of state representatives.

GOVERNOR AND LIEUTENANT GOVERNOR

Two states voted on amendments relating to the election of lieutenant governors and succession to the governorship. In New York elections to fill vacancies in the office of lieutenant governor will not be held hereafter unless the office of governor is vacant also. However, the voters of that state rejected another proposed amendment which would provide for a joint ballot for governor and lieutenant governor. This proposal was intended to eliminate any possibility that those officers would be of opposite parties. A Connecticut proposal, still to be voted on in several towns, provides that the lieutenant governor-elect would assume the office of governor in case the governor-elect should die or otherwise be unable to assume the duties of that office.

SUFFRAGE

Five constitutional amendments were concerned with suffrage. Mention has been made already of the facts that by the adoption of the new constitution Georgia has abolished the poll tax as a requirement for voting, and that Virginia, by action of its constitutional convention exempted members of the armed forces from the poll tax requirement during their services and for three years thereafter. Texas, by legislative proposal and popular ratification, likewise granted poll tax exemption to military personnel, but limited the duration of the exemption to a period of 18 months after discharge.

Kentucky added an absent voting proviso to its constitution, and New York adopted an amendment which will permit a citizen to vote in his old voting district if he moves to another district less than 30 days prior to an election. The New York amendment does not apply to districts in which personal registration is required, however.

LOCAL GOVERNMENT

In addition to the home rule provision of the two new constitutions, five amendments related to local governments. Pennsylvania sheriffs will hereafter be eligible to reelection, and election boards in that state will be chosen by municipal elections in the manner provided by law. Justices of the peace will be abolished in first class cities of Wisconsin.

Local tax limits were relaxed in Michigan so as to permit special levies for public improvements. The New York constitutional restriction on local legislation was modified so as to permit the county supervisors of certain counties to approve local laws by a two-thirds vote over the veto of the county executive officer.

PUBLIC IMPROVEMENTS

Several amendments were adopted in anticipation of a wave of public improvements. The Michigan state government was authorized to engage in the improvement or to assist in the improvement and control of rivers, streams, and water levels. The Pennsylvania legislature was authorized to issue bonds for public improvements; and the Wisconsin legislature was authorized to appropriate funds for the construction and improvement of airports.

"Good roads amendments," under which gasoline and motor vehicle tax receipts may be expended for no purposes other than construction and maintenance of roads and highways, were adopted by Kentucky and Pennsylvania. However, the Pennsylvania amendment authorizes loans from the highway fund for other purposes.

MISCELLANEOUS AMENDMENTS

Other constitutional amendments dealt with veterans' preferences in employment, with membership of a state supreme court, and with social security benefits. A New York amendment requires that for appointments and promotions in the state and local civil services, first preferences must be given to disabled veterans of the armed services, and second preferences to other veterans. The preferential rights of non-disabled veterans expire five years after their discharge from military service. In cases of layoffs, veterans must be given preference in retention.

Texas increased the membership of its state supreme court to nine, and also increased the authorized expenditures for old age assistance, aid to the blind, and aid to dependent children. The $15 limit on monthly payments from state funds to any one beneficiary was replaced by a proviso that the state payment should not exceed the payments from Federal funds.

A proposed amendment which would have specified the purposes for which income tax revenues should be used was defeated by the voters of Alabama.

LEGISLATIVE MEASURES

Only four legislative measures were submitted to popular vote in 1945. Three were referred by the legislatures, and one by popular petition. All of these measures were of a financial character.

The Montana voters upheld the legislature on a referred act to authorize the issuance of tax anticipation debentures in order that the state might match available Federal funds for highway construction. A measure to increase the limit on state subsidies for low rental housing programs was approved by the voters of New York, and an extra tax levy for a public building program was authorized in Oregon, but the voters of the latter state defeated a measure to establish a state cigarette tax.

STATISTICS OF OFF-YEAR DIRECT LEGISLATION

The following table shows the extent of popular participation in constitution making and legislation in the odd numbered years since 1930:

Year	Totals		Constitutional Amendments		Legislative Measures	
	No. of States	No. of Proposals	App.	Rej.	App.	Rej.
1931	8	21	5	10	3	3
1933	15	78	41	15	11	11
1935	12	64	25	13	11	15
1937	7	52	36	13	1	2
1939	12	58	44	6	2	6
1941	7	83	80	2	0	1
1943	7	41	38	3	0	0
1945	12	30	23*	3	3	1

* Including two revised constitutions.

ELECTORAL LEGISLATION

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GENERAL

Electoral legislation was enacted in 44 states during 1945. Indiana adopted a codification of its election laws, and Maryland revised its election code so as to eliminate duplicated and obsolete provisions, resulting in a code approximately one-half as long as the former laws.

PRIMARIES

Georgia and South Carolina deleted constitutional provisions relating to the primary. A separate primary for nominating candidates for Federal offices in which citizens shall not be denied the voting privilege on any ground prohibited by the Fifteenth Amendment, was provided in Arkansas, the costs to be borne by the counties. Texas made the primary mandatory for all parties that cast 200,000 (formerly 100,000) or more votes in the last general election.

A form showing party enrollment was provided in Massachusetts, and New York amended the law pertaining to special enrollment of voters in a political party and correction of such enrollment. Minor changes relating to filing for candidacy, mostly affecting the filing date, were made in Alabama, California, Florida, New Jersey, New York, Oklahoma, and Oregon. Florida fixed a $25 fee to file for presidential elector, and Maryland abolished the 25-cent fee for each name on nomination petitions. Primary candidates were limited to filing for one office in Minnesota, and Michigan required a candidate filing for more than one office to make a choice or be disqualified. A candidate in Wisconsin must now file an affidavit with the nomination papers stating that he will qualify if nominated and elected. Write-in candidates in Montana must receive five per cent of the votes cast for that office at the last general election; a candidate who has not filed nomination papers must receive in Wisconsin three per cent of the average vote cast for the party's gubernatorial candidate in the two preceding general elections.

Delaware, Maryland, New Jersey, Ohio, and South Dakota made changes in the primary election date, and provisions for filling vacant candidacies were enacted in California, New Hampshire, New York, Oregon, and Wyoming. On the primary election ballot the office incumbent's name was placed first in California, and Wisconsin gave the top-most ticket to the party which polled the greatest number of votes for governor in the last general election. Missouri and New Hampshire made minor changes in the ballot form.

PARTY ORGANIZATION

A number of changes with respect to party organization were made. Arkansas permitted organized political parties to provide qualifications for membership and for voting in their primaries. California legislated with respect to vacancies in county central committees; and Illinois, Pennsylvania, and South Dakota changed the dates for meetings of the senatorial district committee, state committee, and county central committee respectively. Florida defined those minority political parties whose state executive committees may choose, as between the primary and selection by the committee itself, the method of nominating national committee members and presidential electors and of electing delegates to national conventions. Michigan provided that certain congressional districts be considered counties for the purpose of holding conventions to select state convention delegates. Oregon substituted selection of precinct committeemen at biennial elections, on separate ballots, for the primary.

CONDUCT OF ELECTIONS

Many states made changes pertaining to election administration and related matters. The compensation of various election officials was generally increased in 16 states, and 10 states made changes in their number and selection. Legislation was enacted affecting voting precincts in California, Illinois, Maryland, New Mexico, Pennsylvania, South Dakota, and Wisconsin; and polling hours and provisions regarding the posting of election notices were changed in Florida, Maryland, Minnesota, and Utah. Wisconsin authorized time off for employees to vote with deduction for time lost. New York required the identity of voters to be proved. New Hampshire removed the requirement of certification on the ballot to the effect that it had been marked with the assistance of an election officer.

North Dakota prohibited a candidate defeated in the primary from having his name on the general election ballot for the same office. Michigan permitted a ballot-box designation on the ballot's detachable corner and an identification numeral for each candidate. North Carolina forbade the use of titles such as doctor, reverend, etc., on all ballots, and California limited designation of occupation to three words and barred misleading designations. Wisconsin arranged party columns on the ballot according to the party vote for governor in the last general election instead of alphabetically. Texas adopted the presidential short ballot. New Mexico provided for constitutional amendments submitted at a general election to be printed in a column on the right of the ballot. Other minor ballot changes were made in California, Connecticut, Minnesota, Montana, New Mexico, Oregon, Texas, Washington, and Wisconsin.

Connecticut required publication of the election laws after each regular session of the general assembly. Oregon prohibited certain materials in voters' pamphlets, and Montana instituted such pamphlets for constitutional amendments. Election contests were affected by legislation in seven states, important changes being those in Nebraska and West Virginia requiring a contestant to post a bond covering costs if the contest fails, in New Hampshire requiring a contestant to agree to pay the expenses of a recount in certain cases, and in Missouri where a contested election for governor is to be decided before the Supreme Court instead of the lower house of the legislature. Alabama required presidential electors to vote for the nominee of the national convention of the party by which they were elected. Alabama, Illinois, Maryland, New Jersey, New York, and Texas made changes affecting voting machines, Alabama and New Jersey authorizing rental agreements.

CORRUPT PRACTICES

Ten states enacted corrupt practices legislation. Arkansas and North Dakota required the names of sponsors of political advertising to be shown; Nebraska ordered information on political expenditures by public power districts. Georgia, Maryland, and Oregon legislated with respect to the sale of liquor on election days. Wisconsin increased the amounts of campaign expenses for state senator and assemblyman. California, Florida, Georgia, Maryland, and New York made minor changes.

SUFFRAGE

Georgia amended her constitution to delete, as entitling one to vote, the "grandfather clause" and ownership of 40 acres as residence in the state or of property assessed at $500, and to eliminate payment of the poll tax as a prerequisite for voting. Texas and Virginia made constitutional changes to permit persons in the armed forces to vote without having paid a poll tax. Texas required persons entitled to poll tax exemptions to secure an exemption certificate annually. New York provided for proving citizenship by affidavit where naturalization papers are lost or destroyed. Delaware made necessary a declaration of intent to become a resident and one year's residence thereafter for those coming into the state, and Maryland abolished the affidavit of non-intention to change residence by persons leaving the state temporarily. Connecticut eliminated conviction of crime as a bar to voting and, with Oregon, legislated for the re-enfranchisement of convicts. New York exempted from the prohibition against felons' voting any person who has received a certificate of good conduct from the board of parole.

REGISTRATION

Numerous changes in registration relating to such matters as date and hours, transfers, indexes, permanent registration offices, and duties of registrars were made in 19 states. In Pennsylvania boroughs, towns and townships, and cities of the first, second, second-A, and third classes, a broader definition of those in the armed forces was added, biennial cancellation of registration was put on a calendar basis, various registration dates were changed, and the quadrennial checkup was made optional. West Virginia repealed her quadrennial checkup. Regarding cancellation for non-voting, Connecticut abolished this until 1951, Georgia adopted biennial cancellation, New Mexico advanced the date, and Washington lengthened the period for non-voting to four years. Michigan extended her general registration act to villages; Illinois made registration necessary in counties under 500,000 to vote for county and certain judicial officers; Maryland effected in substance permanent registration, both in counties having permanent boards of registry and in those not having such boards. Absent registration was provided in a number of states for those in the armed forces, in Massachusetts for those physically disabled, in Oklahoma for those temporarily absent, and in Washington for those within the county of the voting precinct.

ABSENT VOTING

Kentucky and Missouri adopted constitutional changes permitting absent voting outside as well as within the state. Colorado authorized absent voting by a person moving to another county within 90 days prior to a primary or general election. Connecticut and Maine extended absent voting to municipal elections and city primaries, respectively; Alabama abolished it in special elections. Massachusetts included physically disabled persons, and Minnesota relieved voters from the expenses of voting by mail. In 14 states, changes in the law were made relating to absentee ballots—instructions, time and method of securing, method of marking, and counting and preserving.

Twenty states enacted or amended laws relating to voting by members of the armed or auxiliary services, many of these having the effect of extending laws previously enacted with definite expiration dates. Iowa created a war ballot commission with broad powers to make changes in forms; New Mexico granted the Secretary of State similar authority; and New York repealed its act and provided a temporary war ballot commission to supervise voting by members of the armed services. Oklahoma amended her law to make it applicable to run-off primaries.

REFERENDA AND LOCAL LEGISLATION

Constitutional changes affecting elections were adopted in six states: Georgia and South Carolina—to eliminate constitutional primary regulations; Georgia—to delete as voting qualifications the "grandfather clause," ownership in the state of 40 acres of land as residence or of property assessed at $500, and payment of a poll tax, and to clarify regulation of the sale of intoxicating liquor on election days; Kentucky—to authorize absent voting; Missouri—to permit absent voting from outside the state, to decide a contested election for governor before the Supreme Court, and to change the date for selecting the state auditor so as not to coincide with the election of other state officers; Texas and Virginia—to eliminate payment of a poll tax by members of the armed forces as a prerequisite for voting.

Constitutional amendments were initiated in nine states: Alabama—to add suffrage qualifications requiring ability to understand and explain any article of the United States Constitution, good character and understanding of the duties and obligations of good citizenship under a republican form of government, and to delete, as a voting qualification, ownership of 40 acres of land in the state or of property assessed at $300; California—to permit an initiative act to be amended by legislative act upon approval by the voters; Colorado—to provide that no ballot be marked in any way whereby it can be identified as the ballot of the person casting it; Connecticut—to authorize the legislature to provide offenses for which voting privileges may be forfeited and methods by which such rights may be restored, to provide four-year terms for governor, lieutenant governor, secretary, treasurer, comptroller, and probate judges, and to provide for the lieutenant governor elect to qualify as governor in event of the death of the governor elect; Delaware—to provide four-year terms for sheriffs and coroners, and to authorize absent registration of persons in the armed services; Indiana—to provide a four-year term for sheriff and an 18-year-old voting minimum; Kansas—to authorize the legislature to provide the method of filling vacancies in the legislature; Pennsylvania—to delete the one-year term for district election boards, permitting regulation by statute; and Wyoming—to provide for filling vacancies in the state legislature for the remainder of a term by special election.

California, Colorado, and Oregon enacted legislation affecting initiative and referendum petitions, and Oregon authorized counties to adopt by referendum a county manager form of government.

Various special and local laws affecting elections were enacted in Alabama, California, Colorado, Delaware, Georgia, Idaho, Illinois, Indiana, Kansas, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Mexico, New York, North Carolina, Oklahoma, Pennsylvania, Rhode Island, South Carolina, Texas, Virginia, Washington, and Wisconsin.

COUNTY GOVERNMENT

By Mary Capen Davis
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GENERAL

The year 1945 was not only a legislative year, it was also the year which saw an end to the war. This dual fact is reflected in the amount of governmental activity on the county level and in the nature of that activity. The problem of attaining effective local administration with all that it implies for the forms of government, proper organization of functions and extension of civil service practices continues to occupy state officers and citizens, but there are now added considerations of veterans' aid, public works planning on a broad scale, and the extension of governmental functions to meet a variety of post-war needs.

CONSTITUTIONAL CHANGES IN MISSOURI AND GEORGIA

The two major constitutional developments of the year occurred in Missouri and Georgia, both of which adopted new constitutions, the former in February and the latter in August. The Missouri constitution contains a number of provisions whose total effect will be to simplify and make more effective the pattern of county government in the state. The governing body of counties becomes a board of commissioners rather than a county court, with a mixture of judicial, legislative, and administrative functions. Counties are to be classified into not more than four classes, thus reducing the possibility of special legislation. The counties may consolidate, dissolve or partition themselves. They may join in performing common functions. A city and a county may consolidate their functions in any county, and the city and county of St. Louis may consolidate under either the city or the county or may establish a metropolitan district to perform their common functions. Finally, county home rule is authorized for counties of more than 85,000 inhabitants.

The provisions of the new Georgia constitution affecting counties deal with questions of finance, education, and the consolidation of counties. The purposes for which counties may tax are broadened in scope to include administrative expenses, airports, docks and libraries, reasonable reserves for public improvements, workmen's compensation, and retirement funds for employees. Counties are also authorized to obtain temporary loans. There seems to be some question whether the constitution does or does not allow counties to issue bonds without new enabling acts by the General Assembly. Article 8 provides for county-wide school systems to replace separate school districts, except for independent city systems, and directs the county boards of education to set the school tax rate. These provisions also await clarification as to whether or not they abolish rural school districts and place school financing on a county-wide basis. There are to be no new counties except by consolidation, and such consolidation is authorized if a majority of the qualified electors voting in each county approves. The General Assembly may provide optional systems of consolidated county and municipal governments.

CONSTITUTIONAL AMENDMENTS IN NEW YORK AND CALIFORNIA

New York amended its constitution on Nov. 6, 1945, to allow a request for special state legislation from a county which has a governing body and an elective executive officer despite the disapproval of that officer if such a request is passed again by a two-thirds vote of the governing body. The California legislature implemented a previous amendment which authorized it to suspend the constitutional prohibition against increase of the compensation of county, township and municipal officers. This is an emergency measure to continue only until six months after proclamation of the end of the war. It is designed to meet the problem of rising living costs for local officials.

OPTIONAL FORMS OF COUNTY GOVERNMENT

The trend toward optional forms of county government continues slowly, with failures mixed with the successes. Oregon passed its proposed law providing for adoption of a county manager form of government upon a majority vote of the county electors voting. The law also abolished all elective and appointive county offices vesting their power in the County Board which is empowered to appoint the manager on merit alone and order an annual audit. County administration is thus streamlined and placed on a merit basis. The Nebraska legislature allowed counties under township organization to vote to change to a commission system.

Washington and Wisconsin supply the debit side of the ledger. In the former state a bill to allow county manager government for King County (Seattle) and a bill allowing Washington counties to adopt home rule charters failed to get out of committee.

Wisconsin continues to have difficulty with amending its constitution to allow optional forms of county government, including the county manager plan. An amendment to the Wisconsin constitution has to be approved by two successive legislatures and then by the voters in a referendum. At present the constitution requires a uniform system of county government. In 1941 and now once more in 1945 a resolution to amend to allow optional forms was defeated after passing in the preceding legislative session. As one way of dealing with this situation and continuing the campaign for reform, a joint interim committee to study county government in Wisconsin was established by the 1945 legislature. The leaders of the campaign intend to continue until it reaches a successful issue. (cf. Weidner, E. W., "County Reform Run-Around," *Nat. Municipal Review,* Sept. 1945.)

CONSOLIDATION OF CITY AND COUNTY OFFICES OR FUNCTIONS

As an alternative to complete reorganization of the form of county government, which as a program often encounters many difficulties with old habits and entrenched interests, partial reorganization through consolidation of offices or functions seems to be gaining momentum throughout the country. This trend is evident in connection with new functions assigned to counties, but it is particularly significant in the area of county-city relations. Contiguous or overlapping city and county jurisdictions have provided some of the more picturesque difficulties in local government with intense political complications. Philadelphia is a long-standing example of this situation. As one step toward eventual consolidation, the Pennsylvania legislature passed a law providing that salaries of those county officials paid from the treasury of the city of Philadelphia shall be fixed by ordinance of the City Council instead of by numberless county boards and commissions. In Alabama a commission has been established to investigate the question of government consolidation in Jefferson County, which includes the cities of Birmingham and Bessemer. On a more limited scale, Fulton County, Georgia, is allowed to increase its budget to maintain a Hospital Authority which will include Atlanta. Fulton County and Atlanta are also allowed to operate trade and vocational schools jointly. The *National Municipal Review* (June, 1945), reported that joint city-county health departments are on the increase throughout the country. California has provided several optional patterns of consolidation of county offices for county supervisors to elect.

COUNTY MERIT SYSTEMS

Extension of civil service on the county level continues to be steady. Riverside County, California, and Outagamie County, Wisconsin, have adopted new classification and pay plans. Fulton County, Georgia, has extended its merit system to include police and fire departments and the county agricultural agents and further gives the County Commissioners the right to prefer charges against employees in the classified service for violation of civil service rules. An Oregon law establishing a merit system of personnel administration for the state civil service allows the state civil service commission to furnish service to any locality in the administration of its personnel and merit principles. Pennsylvania, Montana, Oregon, Indiana, Michigan, and Tennessee established retirement systems for county employees.

EXTENSION AND REORGANIZATION OF COUNTY FUNCTIONS

The volume of legislation in the past year, pertaining to county functions, is such as to preclude any itemized account of it. Two tendencies, however, are nearly everywhere apparent. In the area of previously established county functions, the prevailing movement seems to be toward consolidation of operation and standardization of procedures. Consolidation is to be observed within the county and between counties as well as between a county and a city. Where new functions are bestowed upon the county these deal primarily with problems arising out of or aggravated by the war stiuation.

The first category includes such items as health, roads, and finances. Washington, for example, has authorized health districts of two or more counties or of a city and a county, and Pennsylvania has authorized the construction and operation of joint county or city and county contagious disease hospitals. A county-unit system of roads has been adopted in Kansas, and in Potter, Galveston, and Brazos counties, Texas. Pennsylvania has clarified the respective responsibilities of counties and state for highway construction and maintenance, bringing the counties under more direct supervision of the state Department of Highways. In regard to finances, standardized budget procedures have been established in California, Wyoming, Nebraska, and Colorado, while Tennessee passed budget laws for three counties and established a purchasing agent or commission in the same counties plus two others. The Kentucky Department of Revenue has proposed a new policy for assessment of property which would bring reasonable uniformity and certainty into the system of land valuation.

Some new functions designed to meet special post-war needs have been allocated to counties across the nation. The importance of air communication has led Colorado, Delaware, Pennsylvania, Texas, Washington, and West Virginia to permit counties, either singly or in conjunction with other local governments, to acquire land for, and establish and maintain, airports. California counties may appoint a harbor commission to make surveys and plans for harbor development. Such harbor programs may be financed by bonds or additional taxation. Redevelopment of blighted areas is the subject of legislation in California and Pennsylvania, enabling counties to establish and finance redevelopment authorities to work out and administer comprehensive redevelopment programs.

POST-WAR PLANNING

Despite the demise, at the hands of Congress, of the National Resources Planning Board, it has been generally accepted that some broad program of public works would be necessary to cushion the shock of reconversion and absorb unemployment in the immediate post-war period. Furthermore, nearly all communities have accumulated a backlog of necessary repairs and construction during the war years. To meet this situation, the states and their subdivisions have been developing planning machinery and working out projects. Two patterns seem to have been followed. Some states, for example, Colorado, Connecticut, and Wisconsin, authorize the counties to set aside out of their own moneys special funds to be used for post-war projects. Other states have undertaken the establishment of state and local planning machinery and have shouldered part of the financial burden for the localities. Illinois has created a Post-War Planning Commission which is to approve local projects and allocate state funds.

In Michigan a hierarchy of planning commissions has been authorized; a state planning commission, which in turn may create regional commissions where necessary and county planning commissions set up by the counties themselves. State financing of local projects is to be on a matching basis. New Jersey appropriated money in 1944 for preliminary local plans and specifications for post-war public works. Approval of these preliminaries and allocation of the funds for detailed plans is the function of the state Commissioner of Economic Development. By July 1, 1945 all counties had projects approved for a variety of public works. The board of county supervisors in each county in New York State has been authorized to set up a county planning commission. Such local authorities may apply to the Temporary State Commission for Post-War Public Works Planning for grants to make both preliminary studies and final plans of public works projects. Pennsylvania has also authorized its Post-War Planning Commission to approve local plans and specifications and to agree to finance them up to 50 per cent of their cost.

VETERANS' AID

Specifically, county services to veterans within the general state programs fall in the main into three classes. In California, Colorado, Illinois, Michigan, Minnesota, New York, Oregon, Pennsylvania, Tennessee, and Wisconsin, the counties are authorized to appoint a veterans' service officer or commission charged with the general duty of assisting veterans and their families to avail themselves of those benefits and compensations provided for them by Federal or state laws. Kansas, New York, Oregon, Pennsylvania, and Texas have directed their counties to provide, free of charge to all veterans, certified copies of discharges and other military records. Finally, counties in Iowa, Oregon and Washington must pay relief to indigent veterans and their families, and New Jersey, Oregon, Pennsylvania, and Washington make provision for counties to assist with the burial expenses of deceased service men. The major part of the state veterans' programs, however, has been operated to date directly by the state machinery without particular utilization of the counties.

FEDERAL AND STATE AID TO COUNTIES

A natural concomitant of expanded county public works programs is an increased need for financial assistance. As such programs are designed to make up a national drive on post-war unemployment some help is expected to come from the Federal Government. Several states have passed legislation authorizing the counties to accept Federal aid either for general public works activities, or for specific projects such as airports and redevelopment of blighted areas. The *National Municipal Review* (November, 1945), reports that the localities are now waiting anxiously on congressional action to discover how much aid will be forthcoming and for what purposes. As was previously mentioned, the states themselves have provided in many instances for state support of a percentage of county plans. State aid continues to be made available for such regular functions as agricultural research, forestry, and education.

GOVERNMENTAL STUDY OF COUNTY PROBLEMS

There are encouraging indications in some states of legislative interest in the effectiveness of counties generally or in regard to particular services. This interest is evidenced by the establishment of committees to study various aspects of county government. Mention has already been made of the Wisconsin Joint Interim Committee to investigate the structure of county government in that state and make recommendations concerning it to the 1947 legislature. The New York Uniform County Laws Commission created in 1944 has been continued and has already had hearings on such questions as broader legislative power for counties, a uniform budget system, and the county manager plan. In New Hampshire an interim committee has been appointed "for study and analysis of existing laws and methods relating to the general subject of county government and its relationship with state and local government" (ch. 231). Connecticut has directed its legislative council to consider the county as a unit of government and its relation to the state with particular reference to the problem of the care of neglected children. Finally, Pennsylvania has appropriated money to the Joint State Government Commission to develop "a sound financial highway program for the Commonwealth and its political subdivisions and an equitable basis for state aid to local governments" (Act No. 55-A).

CONCLUSION

Even this brief review of county government activities during the past year gives evidence of a dual development for counties which seems to be continuing slowly but steadily. On the one hand, there is an extension of county functions to meet a growing demand for service. This is part of the expansion of governmental activity on all levels as social relations and technologies become more intricate. More impressive despite obvious halts is the gradual progress of measures designed to make county government more effective and responsible. That expansion should in many cases be accompanied by reform is an encouraging phenomenon.

PERIODICAL PUBLICATIONS

Book of the States, The
Council of State Governments, 1313 E. 60th St., Chicago.
National Municipal Review
299 Broadway, New York City.
Public Works
310 East 45th Street, New York City.
State Government
Council of State Governments, 1313 East 60th St., Chicago.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Legislators Assn., 1313 E. 60th St., Chicago.
Civil Service Assembly, 1313 E. 60th St., Chicago.
Civil Service Forum, 2 Lafayette St., New York City.
Council of State Governments, 1313 E. 60th St., Chicago.
Institute of Local and State Government, 3437 Woodland Ave., Philadelphia.
National Assn. for Constitutional Government, 716 Colorado Bldg., Washington, D. C.
National Civil Service Reform League, 67 W. 44th Street, New York City.
National Municipal League, 299 Broadway, New York City.

DIVISION V

MUNICIPAL GOVERNMENT

NEW YORK CITY AFFAIRS

By Theodore H. Skinner
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GENERAL

In the City of New York, as in the rest of the nation, the year 1945 was notable for its contrasts. Grim determination to win the war and to endure discomfort to that end gave way to wild enthusiasm over victory in Europe and the Orient, and to the largest retail sales in the city's history. The city streets were dim in January and brilliant in December. Cooperation between management and labor in the early months was succeeded by strikes and threats of strikes. Twelve years of non-partisan government under a Fusion Mayor and administration ended in the triumph at the November election of the Democratic party organization.

THE MAYORALTY CANDIDATES

As the year commenced, keen interest was centered on the two men who opposed each other in the 1941 campaign, Mayor LaGuardia and William O'Dwyer. To many it seemed quite logical that the Mayor, three times elected to that office, would attempt to emulate his friend and supporter, the late President Roosevelt, and try for a fourth successive term. However, throughout the early part of the year, the Mayor remained uncommunicative as to his intentions, his attitude offering a sizeable obstacle to any early, effective organization of the various groups which had been aligned in the Fusion movement. General O'Dwyer had served in the Army during the war, achieving the rank of Brigadier General and had been assigned to head the War Refugee Board. Returning to his duties as District Attorney of King County, he conferred with Brooklyn Democratic leader, Frank Kelly, and announced that he would not be a candidate, thus apparently leaving the field wide open to all aspirants for the honor. The leaders of the American Labor Party announced that they were keeping an open mind on the matter, but would insist that the candidate, to obtain their support, must be sympathetic to the foreign and domestic program of the President, while the Liberal Party merely stressed opposition to any "machine type" nominee.

As the Mayor had gradually antagonized the local leadership of the Republican Party during his tenure of office, there was considerable doubt as to whether he could obtain approval of his candidacy. Preliminary conversations were initiated by some of the Democratic leaders looking to a Democratic-Republican fusion to oust LaGuardia, but nothing came of it as the Republicans were unwilling to support any of the men suggested by the other party. However, Secretary of State Curran, the Republican leader of Manhattan, reported that 80 per cent of his district leaders were opposed to further support of LaGuardia and indicated that he favored a primary fight in case he insisted on the nomination, and City Magistrate Abner Surpless of Brooklyn, an old-time foe of the Mayor, announced that he would throw his hat into the ring. Judge Samuel Seabury and 45 others, who had played a prominent part in previous fusion victories, wrote Governor Dewey, urging him to use his influence to rally Republican support behind the Mayor, while the National Republican Club went on record as disapproving any candidate who was not a regular member of the party.

In April, Comptroller McGoldrick, long a wheelhorse in the Fusion administration, broke with the Mayor and voted to approve an increase in the budget, thus widening the rift between the two, growing out of their differences over Brooklyn slum clearance the previous year. This led to suggestions that McGoldrick head a bi-partisan ticket and effectually forestalled any possibility of the two men continuing as political associates. At the same time the picture was further clouded by the death of President Roosevelt. La Guardia had supported the President in his campaigns, and the latter had reciprocated when the mayoralty was at stake. With the accession of Truman, a strict party man, to the Presidency, the Democrats might properly expect administration support for an organization candidate.

Early in May the Mayor announced that he would not again be a candidate, giving as his principal reason a belief in the desirability of bringing fresh minds and fresh abilities to the city's government. Furthermore he said, "I have worked very hard and had no rest or vacation in twelve years." He then named a dozen individuals whom he felt well qualified to succeed to the office, among them Council President Newbold Morris. The name of Joseph D. McGoldrick was conspicuous by its absence, an indication that any ticket headed by the latter would meet with the Mayor's bitter and effective opposition. With the withdrawal of LaGuardia, the leading candidate of the American Labor Party, that organization gave an unofficial endorsement to O'Dwyer.

In the meantime the right wing of the old Labor Party, now operating as the Liberal Party, was suggesting that it would combine behind the candidacy of either McGoldrick, Justice Pecora, former Justice and Presidential adviser Samuel Rosenman, or General Sessions Judge Jonah J. Goldstein. All of these were Democrats and the last had received serious consideration as the Democratic nominee. Meanwhile, despite his earlier refusal to be a candidate, two of the five Democratic leaders, Representative James A. Roe of Queens and Jeramiah Sullivan, continued to press for the nomination of O'Dwyer, with Manhattan leader Edward V. Loughlin willing to go along. A business men's committee was formed to further the demand for the Brooklyn District Attorney, and shortly after he reconsidered his decision. When his own leader Frank Kelly and national committeeman Edward J. Flynn of the Bronx continued to remain outwardly indifferent to him, O'Dwyer indicated that if necessary he would fight it out in the primaries. Eventually Kelly and Flynn came around and O'Dwyer became the official nominee of the Democratic organization, receiving also the nomination of the Labor Party.

With the formal announcement of the Democratic decision, the Citizens' Non-Partisan Committee, the coordinating agency of past fusion movements, persuaded Governor Dewey and the Republican high command to designate Judge Jonah J. Goldstein as their nominee, with the Liberal and Fusion parties following suit. A number of the Republican district leaders were disgruntled by the selection of a regular Democrat as the Republican standard bearer, but no effective opposition developed. However, Council President Morris voiced bitter personal opposition to Goldstein's selection, and refused to accept redesignation as his running mate on the ticket. Accordingly Municipal Court Justice Nicholas M. Pette, a Republican was substituted, with

Comptroller McGoldrick agreeing to run for reelection.

THE CAMPAIGN

It is highly probable that the preliminary skirmishing in the Democratic organization was of considerable value to General O'Dwyer as it relieved him of the stigma of being an "organization" candidate and emphasized his "independence." This impression was furthered by the candidate shortly after his nomination. Originally selected as his running mates were Assemblyman Irwin Davidson of Manhattan for Council President and Lawrence Gerosa of the Bronx for Comptroller. Neither of them could be considered as strong candidates, being run-of-the-mill party men with no particular claim to superior ability or municipal "know how." O'Dwyer refused to accept them as his running mates and forced the substitution of State Senator Lazarus Joseph, one of the ablest members of the legislature, for Comptroller and former Assistant District Attorney Vincent Impelletteri of Manhattan for Council President. Meanwhile the Manhattan organization had refused to renominate District Attorney Hogan who had been elected originally as the candidate of both major parties. O'Dwyer then announced that he would refuse to accept the new designee as his running mate and forced leader Loughlin to reconsider and renominate Hogan. Both of these actions tended to increase the impression that the head of the Democratic ticket would be his own man and run the office without accepting direction from the county leaders. The idea of independence was furthered throughout the campaign by the regular organization remaining discreetly in the background while all publicity was given to the Independent Citizens' Committee for the election of O'Dwyer.

In August Mayor LaGuardia exploded a bombshell in the fusion camp by announcing the entry into the campaign of a "No-Deal Party" headed by Newbold Morris, with Tax Commissioner Joseph Levine the nominee for Comptroller, and Magistrate Peter Horn for Council President. The Mayor announced that this ticket would offer a chance to vote for a real independent non-partisan slate as contrasted with the earlier nominees, both of whom were accused of being mere cogs in the Democratic machine, the election of either meaning a return to the "old philosophy of government, based on the theory that tax revenues are the spoils of political victory."

Compared to previous campaigns in which Mayor LaGuardia was actively engaged, that of 1945 offered little excitement. As was to be expected O'Dwyer insisted that he was a believer in "good government." Given the support of the Communists, largely on the ground that his election would assure the continuance of the New Deal in the nation, he vigorously disavowed all such support, without of course losing any of it. He denounced racial and religious discrimination, particularly assailing Senator Bilbo of Mississippi, and stressed the need for prompt economic assistance to Italy. He promised to curb underworld influence and suggested a specialized tribunal for wayward youth. More schools and teachers would be his first order of business and the depleted police force would be expanded to its authorized strength. An immediate extension of unemployment insurance, speedy assistance to veterans, the immediate construction of additional low cost housing, and adequate medical care for all. Turning to purely municipal affairs he charged that the state had been short-changing the city in the collection and distribution of taxes, alleging that of the amount annually collected by the state from city sources barely one-sixth had been returned to the metropolis, and pledged himself to vigorous measures to assure a more equitable distribution.

Judge Goldstein, the fusion candidate, advocated a $2,700,000 public housing program, with expense shared by Federal, state, and city governments, more schools and teachers and the establishment of a city medical college, and promised the establishment of a city bureau of veterans' affairs, a city department of commerce to further economic progress, and a city commissioner of industrial and labor relations. He placed most of his emphasis on the charge that there would be gangster rule if O'Dwyer were elected, claiming that his opponent was put in the race by racketeers and the Communist-controlled Labor Party. He charged O'Dwyer with close acquaintance with Frank Costello, Joe Adonis, and Irving Sherman all of whom were actively behind his candidacy. In this connection he obtained the support of Governor Dewey and the Republican appointive District Attorney of King County, George Beldock. The latter presented evidence to the Grand Jury resulting in a presentment by that body to the effect that O'Dwyer had been guilty of criminal laxity in not pressing investigations of racketeering on the Brooklyn water front. The Democratic nominee ignored the charges regarding Costello *et al.*, but answered the presentment by the statement that he was absorbed at the time mentioned in his successful prosecution of Murder Incorporated.

The third candidate, Morris, continued to emphasize his complete independence of all political bosses, Republican and Democratic alike, and pledged a continuance of the LaGuardia type of municipal administration. Fighting against the Tammany system which had nurtured both Goldstein and O'Dwyer, he predicted that the election of either would bring about the return of gamblers, appointment of "club house loafers" to important city positions, extensive graft in city contracts, and a general breakdown in the efficiency of the city's administration.

It will be noted that, as is so frequently the case, the campaign involved an undesirable mixture of purely municipal affairs with various aspects of national politics and administration. Thus the voter was frequently uncertain as to whether he was voting for a Mayor or for a President. A considerable number could easily have felt, as the campaign progressed, that the election of Judge Goldstein would send Governor Dewey to the White House in 1948, or that a victory for O'Dwyer would insure the continuance of the New Deal. Such a confusion of national and municipal issues is to be deplored, but seems inevitable as American politics is now organized.

THE ELECTION

To many observers the entry of Morris into the race and the defection of the Labor Party from the Fusion ranks made the outcome of the election a foregone conclusion and deterred a number of voters from exercising their franchise. When the results were tabulated, a total of 1,119,225 votes had been cast for O'Dwyer, with 434,050 for Goldstein and 399,437 for Morris. That the latter could roll up such a total while running independently could be considered a moral victory while at the same time illustrating once again the complete hopelessness of any purely independent movement in municipal politics. While the Democratic organization captured City Hall, the election totals were not too encouraging. It will be noted that the Democratic party vote constituted only 42 per cent of the total, 260,000 having been contributed by the American Labor Party. Thus, with a continuing alliance of the Laborites and Morris supporters with the other Fusion groups, as in 1937 and 1941, the Democratic candidate would have been defeated.

Another interesting feature of the election was the poor showing of the Republican Party. Goldstein could secure only 302,000 votes on the Republican line in contrast to the 400,000 cast for Morris. This was a drop of 400,000 from 1941 and reduced the party to its weakest position since 1917. It seems evident that the only prospect for Republican success in the future lies in wholehearted fusion with other anti-Democratic groups.

Among the losers, Comptroller McGoldrick made the best race, running well ahead of his ticket. However, O'Dwyer was able to carry his entire ticket with him, with the exception of the borough presidency in Richmond, which went to an independent Democrat running with Republican endorsement.

THE NEW ADMINISTRATION

After his election, the Mayor-elect gave partial indication of his independence of machine politics. He announced his intention to retain, at least for the time, a number of Mayor LaGuardia's department heads. Chief among these was Park Commissioner Robert Moses, who had supported Morris. Not only was Moses to be retained, but he was given the additional task of supervising and coordinating all public construction undertaken by the new administration. Other hold-overs included Purchase Commissioner Emile Pleydell, Health Commissioner Ernest L. Stebbins, and Police Commissioner Arthur W. Wallender, the latter a career man who had succeeded Commissioner Valentine a short time before.

With the election of a Democratic Mayor, it was a foregone conclusion that the new Council would also be safely Democratic. The final distribution of the P. R. ballots indicated a total membership for the new four-year term of 23: 14 Democrats, two Republicans, two each American Labor and Liberals, two Communists, from Manhattan and Brooklyn, and one Independent. This represents a gain of three Democrats, one Liberal, and one Laborite, and the loss of one Republican, the size of the Council depending on the total vote cast. That the Democrats, with only 42 per cent of the Mayoralty vote, were able to elect 60 per cent of the Council, is explained by the fact that Democratic voters utilized their choices to their full extent; the voters of other parties did not.

THE SCHOOL SYSTEM

Although New York has been justly proud of its schools as among the best in the nation, the system was the center of acute controversy during the year. For the first time in a quarter of a century the city faced a serious shortage of teachers. Reversing the non-appointment policy that had been in effect for the past 14 years, numerous appointments to the teaching staff have been made without relieving a serious shortage of instructors. The high wages offered by industry, the numerous war jobs, and various other positions available to teachers resulted in approximately half of all appointments being declined. The originally large reserve of eligibles in the elementary schools was exhausted, and it became necessary for new examinations to be given. As a result of the teacher shortage it was estimated that over half of the high school classes were above the norm of 35.

Part of the system's difficulties was owing to a lack of funds. Until 1945, the city's share of state money for education amounted to $44,000,000, based on a distribution formula which had become obsolete. In 1945 this formula was revised and the city received an additional $6,000,000. However, educators insist that still more funds must be appropriated, and this, with its restricted taxing power, the city felt unable to do. As a result, individual and group complaints were frequent. Demands for sweeping inquiries were made by the Teachers' Guild; resolutions demanding investigation were introduced at Albany and in the City Council; none of them, however, produced results.

The controversy over the shortcomings of the Board of Education and the Superintendent of Schools came to a head in October, when the head and a majority of the membership of the Board's advisory committee on human relations resigned. The previous year school officials, feeling that the school and community should be brought together more closely, asked leading citizens to form an advisory committee to examine possible methods of coordinating school and community activities. The committee was headed by Frank E. Karelson, Jr., president of the

Public Education Association. With dramatic suddenness, Karelson resigned, charging that neither he nor his committee had received any cooperation from the board and that its reports had been pigeon-holed without ever being considered or made public. In addition, in a series of newspaper interviews, he charged that there were from five to 15 classes in each school without teachers, that there were too few attendance officers to combat truancy effectively, and that many of the services requisite to a good school program were completely lacking.

The Superintendent replied that the schools were doing a good job and that it was not the business of the committee to intervene in school matters, but only to advise regarding community problems. He thereupon appointed Dean Russell of Teachers' College to head and reorganize the committee.

Meanwhile, Karelson and the other resigning committee members formed a new committee and proceeded to demand that immediate action looking to improvement be taken. They urged a complete shakeup in the system and set up a 14-point program designed to provide a better education for the city's youth, including smaller classes, particularly in tension areas, a complete teaching staff in every school, additional personnel in the Bureau of Child Guidance, and additional human relations counselors with proper training.

The Superintendent countered by pointing out that New York was already spending close to $180,000,000 for educational purposes, and that the committee proposals would entail an additional expenditure of $50,000,000, inquiring as to where that amount might be secured.

The committee called upon the Governor to direct the State Department of Education to investigate. The Governor turned the request over to the Board of Regents who in turn directed the Commissioner of Education to take jurisdiction. As the year ended, no further statement on the subject had come from Albany.

The Mayor leaped to the defense of the Board and directed his Commissioner of Investigation to investigate the situation. After a number of closed hearings, he found that the committee's charges were unfounded and gave the school system a clean bill of health. At the same time, the Board issued a special report answering the committee and claiming that progress was being made on all points at issue. The Board stated: "We are not suggesting that the New York City school system is free from faults, but we do say that when any deficiencies are found, every effort is made to correct them." The committee countered that the Board had withheld information, had painted a picture of non-existent conditions, and was merely beclouding the issue. What disposition of the matter Commissioner Stoddard might make remained to be seen, but there was every indication that educational problems would continue to provide the new Mayor with a sizeable headache throughout his tenure of office.

EMERGENCY RENT CONTROL

Rent control of residential property, which had been imposed in 1943 by Federal statute, remained in operation, resulting in considerable complaint, particularly from the owners of small properties. While some adjustments were made covering hardship cases, the general picture remained basically the same. The problem of commercial rents, which did not come under Federal regulation, became increasingly acute during 1944 and led to the enactment by the state legislature of a rent control law for business properties, utilizing the same formula as was applicable to residential owners. Lawsuits were undertaken immediately to test the new law and, while successful in the lower courts, failed to obtain its invalidation by the Court of Appeals. Even the retroactive aspects of the legislation affecting contracts, entered into before its final passage, were upheld. A slight breach in residential rent control was effectuated, however, when the Federal Emergency Appeal

Court held that it could not apply to luxury apartments, namely those renting for more than $2500 per year. Rent control was also held not to apply to properties rented on a seasonal basis, such as summer homes or beach cottages.

SHORTAGES AND BLACK MARKETS

As in previous years, the City again found itself confronted by problems growing out of the nature of a war economy, which could only be handled in cooperation with state and Federal authorities. Coal again was scarce in the early months of the year, though not so much so as in 1944, and rationing to a slight degree became necessary. In order to conserve power the Office of War Mobilization directed a minimum use of exterior illumination, so the city streets were dim and the "Great White Way" a mockery until victory was secure.

Possibly most annoying to the average American was the continued shortage of cigarets, resulting in part from prior demands of the armed services and in part from the diversion of normal distribution to black market outlets. Although city authorities made spasmodic attempts to meet the evil, little was accomplished until the state tax authorities utilized potential prosecution for tax evasion to compel more equitable distribution to retail outlets.

The meat situation continued to plague the authorities. Although a ceiling was placed on cattle prices, black markets continued to absorb much of the finished product. In fact some sources estimated that at least 75 per cent of all meat sold in the city was above ceiling price. Mayor LaGuardia, confronted with closing half the city's meat markets for lack of supplies, provided a graphic demonstration of the underlying difficulty by the purchase of a steer and its slaughter for the city—at a loss. Possibly influenced by his action Federal authorities eventually took action which provided considerable relief.

In similar fashion New York's greengrocers took direct action to spur adequate Federal action by staging a shutdown of their stores which closed more than half of the shops in the city—their complaint, that wholesalers' overceiling prices compelled them to operate at a loss.

All of these cases demonstrated the inability of any city to take effective action solely by its own efforts. The understaffed Markets Department undertook to cooperate with state and Federal inspectors in the apprehension of violators, but their efficiency was greatly curtailed by the abolition of a special centralized city court for price and rationing offenses, the result of sudden state legislation. This statute required trial of all such offenses in the borough where committed, thus requiring the officers to devote a much larger part of their time to appearances against offenders.

At the close of the year, with all rationing controls lifted, the city was temporarily threatened with cessation of all meat supplies by reason of the strike of the meat packers' union. Fortunately the threat did not materialize.

HOUSING

Owing to the diversion of building material to war needs, all new construction in the city was virtually at a standstill during 1945. The Metropolitan Life Insurance Company began clearing the ground for its ambitious redevelopment project along the East River, and the operations of the City Housing Authority were limited to planning for the future. Even after V-J Day the material shortage, together with jurisdictional disputes among construction workers prevented any large-scale operations.

After four years of war with a minimum of building, the city was confronted with a housing shortage more acute than that of 1920. Buildings of every type were filled to capacity, returning veterans were compelled to accept makeshift accommodations, the visitor to the city found hotel accommodations limited to five days, if not refused entirely. Confronted by this crisis, the Mayor was slow to take any action even when the opportunity to obtain temporary war purpose structures from the Federal Government was offered. Eventually he proposed to alter the building regulations temporarily so as to permit attic and basement apartments in normal one- and two-family homes, together with exemption from taxes on improvements where unused "old law" tenements were reconstructed. The proposals met with severe opposition from city planning and housing experts. At Albany, the Governor made arrangements with the Federal Government for the transfer of several service installations within the city and prepared to transform them into apartments for the use of ex-service men.

ZONING AND PLANNING

The McGoldrick program for reclaiming the blighted areas near the Brooklyn Borough Hall, the occasion for his first serious rift with the Mayor, as the necessary enabling legislation was passed at Albany, Brooklyn savings banks signed contracts to buy the land after it has been appropriated, cleared and rezoned by the city.

Manhattan's famous Greenwich Village received assurance of protection from the onslaught of modernization as the result of the announcement by a building syndicate of plans to erect a skyscraper apartment on the corner of Fifth Avenue and Washington Square. As the result of numerous protests, the Planning Commission moved to alter use districts so as to protect residential sections from business encroachment, and to reduce permissible building heights by close to 50 per cent. While there was some opposition, the changes were generally well received and were finally approved by the Commission on June 7.

FIRE AND POLICE DEPARTMENTS

The impact of the war continued to aggravate the problems of the Police and Fire Commissioners. Fire Commissioner Walsh, in 1944, revoked the three-platoon system with resultant increase in duty for each fireman. Suits were brought to invalidate the action on the ground that the three-platoon system could not be changed except in time of catastrophe resulting from fire or flood. Early in the year, the courts upheld the Commissioner, and the extra duty was continued for the remainder of the year.

The year 1945 saw the retirement after ten years in the office of Police Commissioner Lewis J. Valentine. A career man, having started as a patrolman, he had brought the department to an acknowledged high level of efficiency, but had been unable to maintain that level because of depletion of his force under the impact of selective service and increased retirement of those eligible for pensions. He retired to become associated with a radio program dealing with crime and criminals, and was succeeded by Wallender, another patrolman risen from the ranks.

With the end of the war the new Commissioner was faced with a startling increase in crime. Homicides nearly doubled over the comparable period of 1944, while felonies jumped from 2,287 to 2,740 for the first ten months of the year. There was little doubt that the shortage of police personnel was an important factor in this increase in crime. The force was short of its authorized strength by over 4,700 men. Commissioner Wallender took a number of emergency measures to meet the situation. Detectives doing routine paper work were sent out on patrol; uniformed patrolmen serving special tours in the early pre-dawn hours were directed to use private cars and wear civilian clothes; expert marksmen on regular patrols were assigned to motor squads; and flying squads were set up to suppress hoodlums. Hurried preparations were made for new examinations to be held in January, strenuous efforts were made to turn the attention of returning servicemen to the prospects offered by police work, and the Mayor announced that all who had passed a civil service examination, but had been called into service before taking the physical, would be appointed immediately on application.

NEWSPAPER STRIKE

In company with the rest of the nation, New York was seriously inconvenienced by the increasing conflict between management and labor. In July, New Yorkers were confronted with the necessity of doing without their daily newspaper as the result of a strike by the Newspaper Deliverers' Union. The Union demanded primarily a welfare fund of three per cent of the payroll and a clause in the contract providing that the question of wages could be reopened. The strike, which tied up the distribution of all papers but one, lasted for 17 days, ending with a series of telegrams between union, publishers, and the WLB. The Board retained jurisdiction over the dispute but agreed to the use of other arbitrators in a number of issues, a prime demand of the strikers.

ELEVATOR STRIKE

In September thousands of the city's elevators were grounded for six days by a strike of the operators, affecting some 2,000 buildings in midtown and lower Manhattan. It was estimated that 1,500,000 persons were prevented from working, notably in the financial district and the midtown garment center. It was estimated that the garment workers lost $3,500,000 in wages, the employers another $12,000,000.

LONGSHOREMEN'S STRIKE

In October, the port of New York was completely paralyzed by a strike of 30.000 longshoremen which continued for 18 days. Although matters of wages and hours were involved, the underlying cause of the battle was a rebellion of the rank and file of the union against the leadership of Joseph P. Ryan who has a lifetime job as president of the AFL longshoremen's Union. The men refused to go back to work on terms agreed to between Ryan and the owners, claiming that Ryan had made no real effort to effectuate their demands. Superficially, Ryan would seem to be the victor as the men finally returned to work without getting assurance that he would back their demands in the future. The causes for resentment remained and were expected to flare up again.

THE BATTLE OF THE BUDGET

In 1944, the Mayor was able to produce a budget which permitted a ten-point cut in the tax rate and emphasized that a still larger cut could have been made if the legislature had been willing to comply with requests for additional taxing power or a larger share of state funds. In 1945, the final results of the Mayor's appraisal of the city's fiscal picture provided a rise in his budget totals—$759,266,401, an increase of almost $21,000,000. The largest share of this, some $19,000,000, was accounted for by wage rises, cost of living bonuses, and pay adjustments for thousands of employees. This rise reflected a general trend toward increasing governmental costs throughout the country.

Anticipating an increase in the general fund, into which funds from the state are paid, the Mayor anticipated another decrease in the tax rate of approximately eight points under the current rate of $2.74. It has been the custom of the Board of Estimate to accept the Mayor's figures with only minor alterations. In 1945, however, LaGuardia was astounded and outraged by a revolt in the estimate body. Comptroller McGoldrick and the Fusion Borough President of Manhattan joined the Democratic borough presidents in voting for a substantial increase in the budget—better than $4,000,000, the final figure being $763,213,014. The largest part of the increase went for an increase of the cost-of-living bonus for city school teachers to $350, instead of the Mayor's figure of $240.

The Mayor bitterly denounced the action of his former allies, intimating that political ambitions in an election year were largely responsible. With the breach between the Mayor and Comptroller thus widened, McGoldrick's chances of obtaining the designation as a mayoralty nominee were considerably lessened. In its customary fashion the Council engaged in vigorous criticism of the Mayor's fiscal policies, then accepted the revision of the Board of Estimate without further change.

SUBWAY PROBLEMS

In 1945, the fiscal condition of the city subway system continued to be a thorn in the Mayor's side. A decrease in the gross operating revenue brought the annual deficit of the system, which must be met by the city treasury, above the $50,000,000 mark. In addition, it was painfully evident that huge amounts would have to be spent after the war merely to restore the system to decent operating conditions. The same groups, headed by the Committee of Fifteen and the Citizens' Budget Commission, which had urged an increase in the five-cent fare in previous years, once more returned to the fray, pushing for passage at Albany of their proposal for an independent Transit Authority empowered to charge a sufficient fare to make the system self-sustaining.

In reply, the Mayor proposed an increase in the sales tax, the additional amount to be applied solely to subway financing. As 1945 was an election year, it was not to be expected that either the sales tax or the fare increase would receive sufficient support to be passed by the legislature. Thus an increasingly aggravating problem, which, so far, has defied solution, was left on the doorstep of the Mayor-elect. Additional funds for subway operation will either have to be diverted from other city services or new sources of revenue explored and accepted at Albany, as there are definite limits on the power of the city to increase the tax load on real estate.

MUNICIPAL POLITICAL TRENDS

By Alfred Willoughby

Executive Secretary, National Municipal League

GENERAL

In the municipal elections of 1945 the American voter provided a widely varied and confused picture of the sovereign citizen. In New York and Boston he restored to power political organizations which had long been labeled "spoils machines," while in New Orleans, where independents never had had a chance and would not, according to local legend, until it snowed on election day, the last surviving henchman of the Huey Long machine was driven out. (It snowed in New Orleans on election day, and that was a miracle, too.)

The Political Action Committee which had been widely heralded as an emerging influence of great weight, fared spottily in its program of seeking local issues with which to keep its new political strength "in training." The organization's weight was partially responsible for the revolutionary change in New York but it was rebuffed in Detroit and Toledo.

Political observers considered significant, however, from the standpoint of its effect on the 1946 Congressional elections and the 1948 campaign, the continuing alliance between Democrats and P.A.C. in the metropolitan centers.

DETROIT

Organized labor's bid for political power in Detroit, center of automobile production, was turned down for the third time by the voters when Richard T. Frankensteen, vice president of the United Automobile Workers, CIO, was defeated by 57,000 votes in his campaign to supplant Mayor Edward J. Jeffries, who had served three terms.

Mayor Jeffries repeated his performance of two years previous by coming out from behind after having been badly defeated in the primary. The campaign was the most bitter and abusive in Detroit's history.

The old and respected tradition of non-partisan local elections emerged from the campaign in a somewhat battered condition, with the Democratic party openly espousing Frankensteen and making considerable point of his record as a party member. Openly, the Republican party remained neutral. The Citizens League, which, while non-partisan, reserves the right to pass judgment on candidates for any local office, endorsed Mayor Jeffries for the fourth term, as did the American Federation of Labor.

It was the most determined bid for local power made anywhere by the Political Action Committee of CIO, which was reported to have poured $100,000 and the efforts of many trained workers into the campaign.

BOSTON

The metropolis of New England provided a demonstration of democracy at work which seemed logical enough to its citizens but which puzzled people elsewhere when it elected Congressman James Michael Curley as mayor despite the fact that a Federal indictment for using the mails to defraud was pending against him.

After his election, Mayor Curley was convicted of using the mails to defraud while participating in a war contracts brokerage racket, but he observed that he saw no reason for resigning his position while his appeal from the conviction was pending. Neither, apparently, did anyone else whose voice could be heard in Boston.

Curley's victory was owing in part to his great popularity in Boston, large elements of which had stuck with him during previous public service in which his conduct had been under fire. He had been mayor twice before, governor of Massachusetts once, and had had four terms in Congress. His election also demonstrated that a popular candidate with a well-organized machine can win with a badly divided opposition. His five opponents shared a clear majority of the votes, 132,370 to Curley's 112,868.

Mayor Curley, who is 71, promised a "monumental and constructive administration." He announced himself as unalterably opposed to the adoption of the council-manager plan for Boston which was proposed as he was taking office.

NEW ORLEANS

The last lieutenant of the Huey Long machine in Louisiana was driven from office early in January, 1946, when Mayor Robert S. Maestri of New Orleans was defeated by deLesseps S. Morrison, a 33-year-old veteran of the Second World War.

The election of Col. Morrison, who went into the Army as a second lieutenant and at 33 emerged as a colonel, was the major political surprise in municipal affairs. He was still in service when a group of "reformers" drafted him as their candidate. The campaign of the Independents was particularly notable in its effort to attract the women's vote. Shying away from the temptation to rest its campaign on gambling and similar delinquencies of the gay southern metropolis, the Independents concentrated on the inefficiency and the political spoils methods of the Maestri machine.

Col. Morrison, son of a former state prosecutor, worked his way through the Louisiana State University law school. After practicing law briefly he served as a state legislator before entering the Army.

TOLEDO

The Political Action Committee was resoundingly rebuked when it attempted to bring about the repeal of the proportional representation method of electing Toledo's city council. The vote upholding P.R. was 38,444 to 21,429, indicating, in view of the known opposition to P.R. by some other groups, that P.A.C. failed to deliver its own enrolled members on the question.

P.A.C. had proposed to substitute election at large, without a primary, which, it was charged by opponents, would have tended to enable a well-organized minority to gain full control of the city instead of providing representation in proportion to actual voting strength as in the past.

ALBANY, N. Y.

The O'Connell machine in Albany, which had been steadily under attack by Governor Thomas E. Dewey for five years and under state investigation for two years, retained control of the capital city in a Democratic landslide, Mayor Erastus Corning defeating Republican Harold J. Murphy by a plurality of 35,000.

PITTSBURGH

In a bitter campaign, David L. Lawrence, Pennsylvania state Democratic chairman, was elected mayor of Pittsburgh with the added backing of labor and other left-wing groups. Long a power in his party, Lawrence had served as its chairman for Allegheny county, as internal revenue collector for western Pennsylvania, and as secretary of the commonwealth. It was under his leadership of the party that George H. Earle was elected governor, the first Democrat to hold that office in Pennsylvania in some 40 years.

BRIDGEPORT, CONN.

Socialist Jasper McLevy, mayor since 1933, was re-elected by a vote double the combined vote of his Republican and Democratic opponents.

PRINCETON, N. J.

The home town of Princeton University lost its long held distinction of having a political science professor as mayor when Charles R. Erdman, Jr., Republican and now commissioner of the State Department of Economic Development, was defeated in his bid for a sixth successive term by Minot C. Morgan, Jr., Democrat, head of the Bureau of Student Employment at the University.

MUNICIPAL FUNCTIONS

By Herbert A. Simons
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and
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GENERAL

The sudden surrender of Japan in August, 1945, unexpectedly catapulted American cities from war to a postwar status. Perhaps at no previous time have cities been forced to redirect their objectives and their programs so suddenly and so drastically. In most respects, the problems with which cities found themselves confronted were not new problems, but problems which had been deferred for four years by the urgency of war needs. Among the old problems, now revived, are the tasks of preventing the spread of urban blight in great metropolitan centers and restoration of areas already blighted, of securing some kind of coordinated municipal government for such areas, of providing cities with a flexible, adequate revenue base; and of staffing our city halls with competent, wide-awake personnel capable of dealing with the complexities of modern administration.

WARTIME RECORD OF CITIES

On the bright side of the picture at the end of 1945 was the magnificent wartime record of the cities in maintaining essential services, and their improved financial condition owing to increased assessed values, the availability of new revenues, and the decrease in indebtedness.

The war period was, for the cities, a period of steady depletion of manpower and physical plant. Neither men nor materials were available for adequate maintenance and renewal of streets, parks, sewers, public buildings, or other facilities. In spite of this, cities continued during 1945 to maintain acceptable levels of public service and to carry the heavy burdens placed on them by new wartime industry.

Localities like Willow Run, Richmond, Calif., and Hampton Roads, Va., which four years earlier had faced apparently insuperable problems of providing for new populations, in every case had met these problems—at an emergency level, to be sure—and were now reassessing the situations in which the war had left them, and were preparing to return to a peacetime basis. At the end of the year, most cities were filling vacant positions rapidly with returning veterans and were getting under way their long-deferred maintenance programs. A large number of cities had anticipated and planned these programs during 1944 and 1945, and were now delayed only by the continuing shortages of labor and materials.

Municipal finance continued during 1945 to be one of the brightest parts of the whole municipal picture. A large number of the cities which were legally able to do so continued their far-sighted policies of maintaining tax rates with only slight reductions, reducing bonded indebtedness, and building up reserves for deferred maintenance and post-war construction. They were aided in this, in several states, by state legislation legalizing such reserves. State legislatures took an unusually liberal and enlightened attitude toward the revenue needs of their cities. Sharing of state-collected taxes was expanded in at least six states—Iowa, Pennsylvania, Michigan, South Carolina, New York, and South Dakota. Impressed by the substantial revenues obtained from the New York City sales tax and the Philadelphia income tax, a number of cities were asking for power to levy such taxes. Baltimore received a broad grant of discretionary taxing power from the Maryland legislature. Cities continued to experiment with a variety of minor tax sources which, however, were largely of doubtful usefulness from the standpoint of revenue yield and fiscal advisability.

Public works planning, already fairly well advanced, was aided by a substantial grant of Federal funds to assist governmental agencies in planning and blueprinting their post-war construction projects. These grants are to be repaid to the Federal Government when the projects reach the construction stage. Continued material shortages have given the cities an extension in the time available to complete these plans.

POST-WAR PLANNING AND PERFORMANCE

In spite of the very hopeful developments just enumerated, the situation of our cities at the end of 1945 left no room for complacency. The slogan of "post-war planning," which echoed from every meeting room during the year had far outstripped the activity of post-war planning. The sudden end of the war found the plans of most cities far from the stage of development they will have to reach if they are to exercise any substantial influence on post-war programs. Most progress had been made on plans for post-war public works; far less progress had been made on plans for urban reconstruction and governmental reorganization, and over the whole scene was cast the dark shadow of an unprecedented housing emergency that will require immediate action, regardless of whether plans are available for guiding this action wisely.

Comprehensive city plans and plans for redevelopment of urban blighted areas present a picture of general unpreparedness for any vigorous program of urban reconstruction. Even here, substantial progress must be admitted if comparison is made with the situation that existed 10 or 15 years ago, for each year more cities have been added to the list of those that are appropriating substantial sums to city planning agencies. The two great weaknesses are, first, the large number of cities which do not yet have comprehensive plans, and, second, the large gap that still exists, and that has hardly been narrowed, between the recognition by planners of the kind of reconstruction that is needed and the legislative and financial tools that are available to bring about this reconstruction.

Almost half the states now have on their statute books urban redevelopment laws designed to attract private capital to the task of reconstructing blighted areas, but there had been no noticeable rush of investment capital to make use of these laws; indeed, by the end of 1945 only two projects had been undertaken. Even if greater activity develops here, it is generally recognized that the greatest part of post-war residential construction will take place on the outskirts of the cities, and that, though existing subdivision regulations may in some places secure adequate neighborhood design of these new developments, there are no adequate controls over their locations nor any means available to prevent (if it is desirable to prevent it) the continued dispersion of cities, and the consequent rotting of their central cores.

The seriousness of the last named problem—the decline of the central city—was accentuated during 1945 by the lack of any substantial progress toward the integration of governmental organization in metropolitan areas. There was one hopeful sign during the year, attributable to Federal activity rather than local initiative. The Federal Government in its new program of aiding through highway construction in urban areas was insisting on the development of integrated highway plans for whole metropolitan areas as a condition for the approval of grants.

The seriousness of the housing problem was emphasized by the appointment, at the end of 1945, of Wilson Wyatt, former mayor of Louisville, as an emergency housing "czar," and by the introduction into Congress of the comprehensive Wagner-Ellender-Taft Housing Bill. Quite aside from the pre-war problem of eliminating substandard housing, the country was faced with the prospect of an absolute shortage of housing which, it is estimated, will reach 1,500,000 or 2,000,000 units by the end of 1946. It did not appear hopeful, as 1945 ended, that the emergency housing which would be needed to meet this problem could be carried out with any great regard for long-term housing, planning, and urban redevelopment needs and standards.

PERSONNEL AND ADMINISTRATION

Continued manpower shortages and steadily rising salary schedules characterized the municipal personnel picture in 1945. The year recorded a number of advances in personnel administration. Position-classification projects were completed or in progress at the end of the year in 11 cities and three states. Four cities and five states had adopted or revised their pay plans. Special training programs were instituted for policemen in five cities, training in telephone techniques in two cities. San Diego set up a comprehensive training program for municipal employees with a full-time training officer.

Nine states adopted statewide retirement systems for municipal employees, bringing the number of states with such systems to 22. A number of other states amended their retirement laws to increase coverage and benefits. Eleven cities adopted retirement plans, of which two covered only firemen and policemen. In eight cities and four counties local legislation was adopted establishing or extending civil service systems.

Court decisions on personnel matters were concerned chiefly with labor unions and the employment rights of returning servicemen. A number of decisions were handed down on the power of cities to bargain collectively with labor unions, holding contracts illegal, but permitting check-off of union dues with the consent of the individual employees. The courts were still feeling their way at the end of the year in the delimitation of the re-employment and pension rights of servicemen. One decision held that a veteran who could not pass the physical examination for his previous position was not eligible for re-employment.

FINANCE

The most important developments in municipal finance during the year have already received attention. One result of the favorable financial picture was the reduction of aggregate state and local debt during the year from about $17,500,000,000 to $16,500,000,000.

Legal problems were encountered in determining the scope of tax liability of Federal war industry properties. Much property was restored to the tax rolls by its transfer to the Reconstruction Finance Corporation which, by statute, is not tax exempt; but the Surplus Property Administration was selling property on time payments, and retaining title so that exemption would continue until final payment is made. The courts continued to broaden the liability of persons within Federal areas to state taxation and the power of the state to regulate them. The Minnesota "home port" tax on airlines brought about a Civil Aeronautics Board report on taxation of airlines that foreshadows an important new Federal policy toward state taxation of interstate commerce. The basic proposal of this report was that the Federal Government permit state taxation of airlines only on the basis of a Federal formula for allocating property values among the various taxing states.

Most states enacted enabling legislation under which municipalities could purchase Federal surplus properties without following the usual advertising and bidding procedures; but the experience in purchase of surplus properties was disappointing because of the failure of the Federal agencies to observe fully the governmental priorities established in the act.

PLANNING AGENCIES AND HOUSING

Some of the most important planning developments of the year have already been reported. Generally, the picture of planning organization was an encouraging one. A number of metropolitan areas, though lacking a governmental structure that will permit a coordinated solution of their problems, have set up official or unofficial metropolitan planning agencies as a prelude to voluntary cooperation. County planning agencies continued to increase and to strengthen their programs, and there was a notable increase during the year in the budgets of city planning agencies. In general, organization for planning was making more rapid progress than the acquisition of powers needed to implement plans.

Airport zoning received considerable attention during the year, 17 states adopting airport zoning acts that followed, in general, the Model Act. They were in the form of enabling acts which permit cities to adopt zoning regulations. The power of cities to acquire airport sites by exercise of the power of eminent domain was upheld by the courts. A legal problem that was just beginning to confront cities at the year's end was that of recovering from wartime variances in zoning laws that had been permitted for the location of temporary war housing and industry, and to allow more intensive use of available housing facilities.

Little action was taken by cities during the year to ward off the impending housing shortage. The Wagner-Ellender-Taft Bill, introduced into Congress, would establish a unified national housing agency, authorize urban redevelopment programs, expand the low-rent housing program, and provide for the disposal of permanent war housing. It makes extensive provision for aid to public, cooperative, and private housing projects, and permits war housing to be turned over to local housing authorities for low-rent housing purposes.

RECREATION AND WELFARE

Enabling acts for recreation in designated classes of cities were passed in four states and amended in a fifth. Recreation commissions or departments were set up in 39 cities and two counties, and new park departments in three cities.

With the end of hostilities, interest in recreation centers for "Teen Age" groups began to subside, while attention turned to programs in housing projects. Camping facilities were crowded to capacity. Recreation appropriations continued to increase. New mileage taxes were voted or increased in 14 cities, and large improvement bond issues approved in six. There was renewed interest in methods for securing the voluntary or mandatory dedication of recreation space in new private subdivisions.

Relief caseloads began going up in July and August for the first time since the war began. The increase was owing chiefly to ageing persons and mothers leaving employment, and returning servicemen. Expenditures increased much more rapidly than caseloads in an endeavor to keep up with rising living costs. Only a few local governments had increased their welfare appropriations in anticipation of the larger rolls. The reception and care of repatriated citizens from war theaters was an important service performed by local agencies with Federal funds. The chronically ill became a serious problem with the crowding of hospitals by acutely ill patients. There was extensive state legislative action in the welfare field during the year, mostly concerned with the strengthening and expansion of existing programs.

EDUCATION AND LIBRARIES

The end of 1945 witnessed the first stages of a back-to-school movement of huge proportions. The brunt of this, of course, falls upon the colleges, which are already deluged with veterans who wish to take advantage of the educational benefits to which they are entitled. An equally important, but less dramatic, return of students was taking place at the high school level, where efforts were being made to bring back to school the youth of 14 through 17 years of age who had left school during the war to take jobs. The shortage of well-prepared teachers continued to be an acute problem, particularly in the school districts which pay low salaries.

The need for increased state support of education was recognized in many states by legislative action during 1945. There were no new legislative developments in Federal aid to education, although proposals continued to be heard of a program of Federal grants to the states for primary and secondary education. Three states established new retirement systems for teachers, and four other states amended their teacher retirement laws.

Special library war information services were succeeded by services providing information on demobilization and reconversion as the year ended. Library expenditures continued upward, in part because of salary increases. State aid appropriations generally increased, and were available for the first time in four states. Municipal reference libraries or branches were established by several cities.

LOST OPPORTUNITIES

With due regard to the brighter side of the picture, the year 1945 might fairly be called a year of lost opportunities. The tremendous activity that is anticipated in the construction industry in the next few years presents cities with an opportunity they have not had since the early 20's to make over completely their physical structures and to wipe out the unhealthy social conditions that have been inherited from the unplanned development of the past. It appears now that a large part of this opportunity will be lost, first because many cities, especially the rank and file of their inhabitants, still do not have an understanding of the meaning of comprehensive city planning; second, because few cities have brought their plans anywhere near to completion; third, because the legal base for implantation of the plans is largely lacking; fourth, because there has been little progress in metropolitan organization; and fifth, because even the planning of post-war public works was delayed too long and was not integrated with general city plans. Only the most vigorous and far-sighted action can recover even a part of this opportunity.

In another area, too, 1945 witnessed the loss of an important opportunity. With large numbers of municipal positions to be filled, few cities had taken any positive steps to modernize their recruiting and other personnel practices so as to attract to the public service a fair share of the best talent among returning veterans and displaced war-workers. Again, the long-term picture of the past ten years shows a steady growth of the merit concept and modern personnel methods in cities, but most of them are still far short of any acceptable goal, and there was little evidence during 1945 of substantial acceleration of this progress.

Perhaps it is too much to expect a nation that is engaged in a colossal life-and-death struggle to give adequate thought to its long-term needs. Certainly it would have been unthinkable for any efforts to have been diverted from the war to fill these needs; but the inability to meet them at once should not have prevented planning sufficient to anticipate the problems that would have to be faced when the war was won. The events of 1945 illustrate that the thinking organisms of our administrative structures have not been sufficiently developed to direct efforts to a broader task than that of meeting successive emergencies.

LOCAL SELF-GOVERNMENT AND FEDERAL LEADERSHIP

A general review of the overall picture leaves the impression that, where striking gains were made on any wide front during 1945, they were produced under Federal leadership rather than by activity initiated at the state and local levels. Self-improvement of municipal governments has to be counted in tens and dozens of units each year, although the cumulative effect of these over a period of years is, of course, impressive.

There are a number of reasons that help to explain this. There is such a multitude of local units, they are so poorly coordinated over urban areas, they are so badly hemmed in by restrictive state legislation and the lack of discretionary powers, their capacity of self-help is strictly limited. Moreover, since the depression, both state and local governments have had to look increasingly to Washington as almost the sole source of revenue adequate, in scale and flexibility, to carry on these new activities. Since part of the remedy lies with state legislatures, it is encouraging that they have shown a more favorable attitude toward local revenue and planning problems during the year. It is less hopeful, perhaps, that state planning in a number of states has at the same time turned in the direction of inducing industries to locate within the state borders and has continued to neglect the problems of overall social, fiscal, and administrative planning.

PERIODICAL PUBLICATIONS

American City
470 Fourth Ave., New York City.
Municipal Finance
1313 East 60th Street, Chicago.
National Municipal Review
299 Broadway, New York City.
Public Management
1313 East 60th Street, Chicago.
Public Works
310 East 45th Street, New York City.
Sewage Works Journal
40 Wall Street, New York City.
Water Works and Sewerage
330 S. Wells Street, Chicago.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Civic Assn., 901 Union Trust Bldg., Washington, D. C.

American Municipal Assn., 1313 E. 60th St., Chicago, Ill.

American Public Works Assn., 1313 East 60th Street, Chicago.

Government Research Assn., 5135 Cass Ave., Detroit, Mich.

Institute of Local and State Government, University of Pennsylvania, Philadelphia.

Institute of Public Administration, 261 Broadway, New York City.

International City Managers' Assn., 1313 E. 60th St., Chicago, Ill.

National Civic Federation, 112 Park Ave., New York City.

National Civil Service Reform League, 67 W. 44th Street, New York City.

National Municipal League, 299 Broadway, New York City.

United States Conference of Mayors, 730 Jackson Pl., N.W., Washington, D. C.

DIVISION VI

TERRITORIES AND SPHERES OF AMERICAN INFLUENCE

ALASKA

By Ernest Gruening
Governor of the Territory of Alaska

HISTORY

American history of the Territory of Alaska can be said to date from 4:00 A.M., March 30, 1867, when the Treaty of Purchase was signed by Baron de Stoeckl for Russia and Secretary of State Seward for the United States. This treaty was proclaimed by President Andrew Johnson June 20, 1867, whereby the United States acquired from Russia the title to the Alaska area of approximately 586,400 square miles for the sum of $7,200,000. The appropriation for this purchase was made July 14, 1867, and the formal transfer took place at Sitka, Oct. 18, 1867. Secretary of State William H. Seward was severely criticized for what was termed "Seward's Folly."

GOVERNMENT

The bill providing for civil government in Alaska was introduced in the United States Senate in December 1883; it was passed by that body in January 1884, and by the House of Representatives in May 1884, when it was signed by President Arthur and became a law. The Territory of Alaska, as such, was created in 1912, by the passage of what is known as the Organic Act. At the present time, the local legislature of Alaska, which meets for a period of 60 days biennially beginning with the second Monday in January of uneven years, is composed of 16 senators and 24 representatives. The Governor is appointed by the President, subject to ratification by the Senate of the United States. A delegate elected every two years represents the Territory in the Congress. He may prepare and introduce legislation, act as a member of committees, but has no vote.

AGRICULTURE

The Alaska Rural Rehabilitation Corporation, with headquarters in Palmer, has general administration over approximately 140 farms and a total land area of 12,000 acres, of which 7,500 acres are under cultivation. The Corporation aids in the development of agriculture in the Matanuska Valley by maintaining reserve and emergency supplies of seed, hay, and fertilizer, by clearing land, and by making production loans to responsible farmers at a low rate of interest. During 1945 the continuing large demand for farm products and the high prices paid to farmers resulted in a large acreage being planted with vegetables, such as potatoes, cabbage, head lettuce, and celery, and with field crops, such as oats and peas for hay and silage, and barley, wheat, and oats for grain. During the 1944 crop year, 2,130 tons of potatoes were marketed, 80 tons of cabbage, 31 tons of celery, 6,500 crates of head lettuce, as well as many other kinds of vegetables. About 1,800,000 pounds of milk were supplied, chiefly to meet the civilian and military demands of the vicinity of Anchorage.

The Seventeenth Territorial Legislature created a Territorial Department of Agriculture, headed by a Commissioner of Agriculture, with headquarters at Fairbanks, for the purpose of promoting and developing the agricultural industry in Alaska, including such fields as horticulture, dairying, cattle raising, fur farming, the preparation and dissemination of information relating to agriculture, the regulation of the entry and transportation within the Territory of plants, seeds, vegetables, animals, etc., in order to prevent the spread of pests and diseases, and to study the marketing of agricultural products within the Territory.

Agricultural Experiment Stations are maintained at the University of Alaska, in Matanuska Valley, and at Petersburg, the latter being an experimental fur farm. Some of the research projects conducted during the year were the raising of swine and poultry, plant breeding, growing oats and peas for ensilage, raising dairy calves on locally grown grains, and wintering sheep. The Agricultural Extension Service is closely allied with the Agricultural Experiment Stations. During the year special emphasis was placed on the production, preservation, and conservation of foods.

EDUCATION

The Territorial public schools are of two classes: schools within incorporated cities and incorporated school districts, and rural schools located outside incorporated cities and school districts. During 1944-1945, 37 rural and 18 city schools, employing 320 teachers, were maintained; 5,794 pupils were enrolled. The public high schools at Anchorage, Cordova, Douglas, Fairbanks, Juneau, Ketchikan, Nome, Petersburg, Seward, Sitka, Skagway, and Wrangell, also the rural high school of Palmer, the Sheldon Jackson School at Sitka, and the Wrangell Institute at Wrangell, are accredited by the Northwest Association of Secondary and Higher Schools. High schools accredited by the Territorial Department of Education are maintained in the incorporated cities of Craig, Haines, Kodiak, Nenana, and Valdez, as well as in connection with a number of rural schools. The Territorial schools are under the general supervision of a Territorial Board of Education, with the Commissioner of Education as executive officer. Graduation from a three-year standard normal school or its equivalent is a prerequisite for the elementary teacher's certificate in Alaska. High school teachers must be graduates of standard four-year colleges and must have completed a minimum of 15 semester-hours of education.

The University of Alaska has completed its 23rd year as the only institution of higher education in the Territory. Although enrollment has decreased in some classifications, the addition of night classes to the regular schedule has maintained the total registration figure at a fairly constant level. Enrollment figures for the year totaled 1,025, comprising 231 students of college grade, 735 mining extension students, and 59 in special short courses.

The Office of Indian Affairs maintained 115 day schools and three vocational high schools with a total enrollment of 5,388 elementary school pupils and 451 high school pupils during the school year 1943-1944.

FINANCE

Cash on hand in the Territorial Treasury July 1, 1945, amounted to $1,407,844.25, as compared with $1,753,034.73 the previous year. The combined resources of territorial and national banks at close of business June 30, 1945, were as follows: Capital $1,035,000, surplus and undivided profits $2,208,408.27, deposits $55,331,987.10. Totals for the previous year were: capital $985,000.00, surplus and undivided profits $1,836,349.64, deposits $54,769,659.79.

FISHERIES

The total value of the Alaska fishery products in 1944 was $63,270,100, a reduction of $3,246,217 over the preceding year. Products of the Alaska fisheries in 1944 amounted to 331,135,017 pounds as prepared for market. In 1944, the salmon canning industry was operated in accordance with the Salmon Industry Concentration Plan, promulgated by the Secretary of the Interior on March 3, 1943, which concentrated in the more efficient plants the entire salmon canning operations, achieving savings in manpower, equipment, and critical materials, and eliminating some burden on shipping facilities. The total number of salmon of all kinds taken in 1944 was 72,429,162 as against 85,846,723 in 1943. The number of cases packed was 4,893,059 valued at $51,196,140, as compared with 5,428,269 cases valued at $57,823,679 in 1943. Ninety-three canneries were operated, 10 more than in 1943, and the number of persons engaged in salmon canning decreased from 19,143 to 19,079. Seventeen herring plants operated; the number of employees increased from 543 to 710, of which 237 persons were also engaged in other fishery operations. The total value of herring products was $2,458,170, an increase of 34 per cent over 1943. The value of halibut landings at Alaskan ports totaled $4,656,817 as compared with $2,649,432 in 1943.

FORESTS

The Chugach National Forest, located in the Prince William Sound region and Kenai Peninsula, and the Tongass National Forest covering the greater part of southeastern Alaska, comprise the National Forest System of Alaska. Their combined area is 20,850,000 acres. All national forest resources are available for use. Standing timber can be purchased and removed for use by local industries and individuals under specified forestry restrictions. Land classified as chiefly valuable for agriculture, mining, industrial enterprises, and townsites can be patented. Areas needed for water power development, fox farming, and other special purposes may be leased. The total estimated timber volume is 84,700,000,000 board feet, and the average volume per acre of the commercial timber stands is about 26,000 board feet. Total gross receipts from timber stumpage and the several classes of land use during the fiscal year 1945 were $101,522.05. Twenty-five per cent of the gross receipts are turned over to the Territory for schools and roads. Ten per cent of all receipts are made available to the Forest Service for road and trail building.

FURS

The take of fur-seal skins from surplus fur seals on the Pribilof Islands under controlled conditions amounted to 47,652 pelts in 1944. The census of the seal herd as of Aug. 10, 1944, showed a total of 2,945,663 animals in the herd, an increase of 8.77 per cent over the previous year. During the fiscal year ended June 30, 1945, two public auction sales of fur-seal skins were held at St. Louis, Mo. during which 45,248 skins were sold. Gross receipts from these sales were $1,635,494.00.

Owing to war conditions fewer trappers were in the field during the past year, but high prices prevailed and thus values were in excess of the previous year's catch. A total of 253,615 pelts of all kinds brought the values up to $2,268,658. At the top of the list were mink, 61,038 skins bringing $671,418; second, 13,352 marten worth $600,840; third, muskrat with 142,500 skins worth $285,060. Other furs ranked in value as follows: Beaver, white, red, cross, blue, and silver fox, otter, lynx, wolf, weasel, coyote, polar bear, wolverine, and black bear.

HEALTH

By action of the 1945 Territorial legislature, the Territorial Department of Health has, for the first time, a full-time Commissioner of Health to direct its work under the supervision of a Board of Health composed of four members. The Territorial Department of Health has five divisions: Public Health Laboratories Division; Maternal, Child Health, and Crippled Children's Services; Communicable Disease Control; Division of Public

Health Nursing; and Division of Public Health Engineering. The United States Public Health Service assists the Territorial Department in formulating sound public health programs in accordance with requirements imposed by the regulations governing the expenditure of Federal funds. The District Director has also been assigned the duties of Medical Director of the Office of Indian Affairs in Alaska in order to assist in coordinating the work of the Territorial Department of Health and the Indian Service.

Tuberculosis remains the major health problem among the natives. Three hundred and nineteen cases of pulmonary tuberculosis were reported to the Indian Service during the fiscal year ended June 30, 1945, bringing the total reported since November 1940 to 1,155. Through an Act of Congress, the Army station hospital at Skagway, Alaska was transferred by the War Department to the Department of the Interior for use by the Alaska Native Service as a tuberculosis hospital. This facility, consisting of 17 buildings and providing 150 beds, constitutes the first significant step toward acquiring the physical facilities required to combat the tuberculosis problem in Alaska.

MINERALS

Before the war, gold mining amounted to over 90 per cent of the total mineral production. Gold production dropped from $26,458,950 in 1940 to $1,725,360 in 1944. Because of the strategic materials needed in gold mining only a few placer mines were given authority to mine during 1944 and then they were under certain restrictions. Throughout 1945, the Bureau of Mines continued an extensive mineral program in Alaska to stimulate the production of metals important to the war, which will also have a favorable effect upon post-war mining in Alaska.

Of particular and timely importance is the discovery of hitherto unvisited oil seeps on the Arctic slope. This discovery has served to stimulate immediate detailed exploration of these seeps by the Navy and other interested agencies as a possible source of petroleum near the anticipated air routes of the future. Other projects now in progress include the investigation of coal deposits, iron and copper deposits on Prince of Wales Island, tin and tungsten deposits on Seward Peninsula and in the Fairbanks area, and tungsten deposits in the vicinity of Hyder. A study of chromite deposits on the Kenai Peninsula proved that Alaska will be able to contribute a substantial tonnage of this ore. The investigation of mercury deposits in southwestern Alaska, particularly around Sleitmut, has led to the production of an important amount of this material.

REINDEER

Reindeer constitute the only agricultural resource in western Alaska, an area about three times the size of Illinois. The Reindeer Service field headquarters are situated at Nome, and the Reindeer Supervisor is directly responsible to the General Superintendent of the Office of Indian Affairs at Juneau. At the close of the fiscal year, June 30, 1944, there were 2,528 native reindeer owners. Approximately 60,000 reindeer graze on 34 main ranges along the west coast between Kodiak Island and Barrow, 39,000 of which are government-owned. Predation, particularly by wolves, has become a very serious problem, at least 30,000 untended deer having been lost in this fashion in the last year. During the year approximately 7,000 reindeer were butchered, having a wholesale value of approximately $150,000.

TRANSPORTATION

The Alaska Railroad furnishes year-around passenger and freight service between Seward and Fairbanks, Anchorage and Whittier, Anchorage and Jonesville-Eska. The changed war situation in Alaska is reflected in a smaller amount of freight and passenger business being handled in 1945 than in 1944. Passengers carried totaled 88,998, an increase of 4,698 over the previous year. Passenger miles totaled 9,275,913, a decrease of 1,605,119 under 1944. Rail line freight hauled totaled 549,248 tons, a decrease of 128,599 over 1944. The revenue from passengers totaled $448,831.85 and the revenue from freight hauled totaled $7,264,574.36.

Alaska is served by five steamship companies: The Alaska Steamship Company, the Northland Transportation Company, and the Alaska Transportation Company of Seattle, the Canadian National Steamships of Vancouver, B. C., and the Canadian Pacific Railway Company of Victoria, B. C. During the year, United States vessels operated by private industry were under the operating control of the War Shipping Administration, and statistics on tonnage and passengers handled are not available.

Commercial aviation is one of the major factors in the industrial life of Alaska. The number of passengers flown during the fiscal year ended June 30, 1945, totaled 53,850; passenger miles flown, 15,847,039; mail and freight carried, 3,824,143 pounds. The Civil Aeronautics Administration has built, and now maintains, 13 major and 21 intermediate airports in Alaska.

HAWAII

By Ingram M. Stainback

Governor of the Territory of Hawaii

GOVERNMENT

Of the 21 islands in the Hawaiian archipelago, eight are inhabited. During the greater part of the nineteenth century the islands formed an independent kingdom, but in 1893 the reigning Queen, Liliuokalani, was deposed and a provisional government set up. In 1894 a republic was proclaimed. Pursuant to the request of the people of Hawaii, expressed through the legislature of the republic, and a resolution of the United States Congress approved July 7, 1898, the islands were formally annexed to the United States on Aug. 12, 1898. The Organic Act under which Hawaii is governed was approved April 30, 1900.

Executive power is vested in the Governor, appointed by the President by and with the advice and consent of the United States Senate. The Hawaiian Organic Act provides that, to be eligible for appointment as Governor, one shall have resided in Hawaii for at least three years next preceding appointment. The Secretary of the Territory, who becomes Acting Governor during the illness or in the absence from the Territory of the Governor, is also appointed by the President by and with the advice and consent of the Senate. There is a Legislature of two houses, a Senate of 15 members elected for terms of four years, and a House of Representatives of 30 members elected for terms of two years.

Hawaii is represented in Congress by a Delegate, elected biennially. He has the right to debate and to be a member of committees of the House of Representatives, but has no vote.

AREA AND POPULATION

For administration purposes the Territory is divided into five counties as follows: City and County of Honolulu, comprising the Island of Oahu (area 604 sq. m.); County of Hawaii, comprising the Island of Hawaii (area 3,030 sq. m.); County of Maui, comprising the Islands of Maui, Lanai, Kahoolawe, and all of Molokai except the leper settlement (area 1,164 sq. m.); County of Kauai, comprising the Islands of Kauai and Niihau (area 627 sq. m.); and Kalawao, administered by the Board of Hospitals and Settlement (area 13 sq. m.). The total area is 6,435 square miles. The principal cities are Honolulu, the capital, situated on Oahu, and Hilo, on the Island of Hawaii.

The non-military population of the Territory reached an estimated total of 502,122 on June 30, 1945, reflecting an increase of 9,743 over the previous year and an increase of 18.6 per cent over the 1940 figure. More than half of the Territory's population was living in the City of Honolulu, the population of which had increased to 261,033, or 45.5 per cent since 1940.

WAR EFFORT

The extent and value of the voluntary and unpaid efforts of Hawaii's citizens in direct aid of the war-effort since Pearl Harbor can not be fairly measured in terms of the limited available statistics. Thousands of men and women, representing every racial element and economic status, worked side by side for the maintenance of the security of the Islands and for the welfare of the armed forces in the Territory. Many thousands served in organizations armed and trained for guard duty and readiness for possible further attacks. Volunteer personnel of the Office of Civilian Defense totaled more than 21,000 persons who, after their regular working hours, trained and kept themselves in readiness to meet any problems which might arise in the event of enemy attacks.

In the Seventh War Loan Drive, Hawaii again exceeded its quotas and retained its record of being the only territory or state that has exceeded every such quota. Total sales during this drive represented 186 per cent of the assigned quota, and Hawaii led the nation in per capita sales.

As of June 30, 1945, inductions into the armed forces totaled 21,520 out of a total of 120,763 registrants in the 18 to 45 group. Voluntary enlistments of registrants totaled 4,095.

A Veterans Council was established by law and was given a generous appropriation for the purpose of providing information, counsel, aid, and assistance to returning war veterans and their families and dependents and coordinating the efforts of other agencies concerned with veterans welfare.

Military government, inaugurated in the Territory on Dec. 7, 1941, and later modified, was finally terminated by executive order of the President on Oct. 24, 1945.

ELECTIONS AND LEGISLATION

The regular biennial territorial and county elections were conducted in November of 1944 without any let-up in the war effort, and showed the largest number of registered voters and the largest vote in the history of the Territory, indicating Hawaii's continuing interest in the processes of free democracy.

The regular biennial session of the Legislature was held in 1945. Of the 300 bills enacted by the Legislature, 277 became law. One of these, sponsored by labor and enacted by the Legislature as the Hawaii Employment Relations Act, extended to the Territory's agricultural workers many of the benefits extended to other workers under the terms of the National Labor Relations Act and other Federal acts. Other 1945 legislation sponsored by the Territorial Department of Labor and Industrial Relations strengthened and broadened the scope of the child labor and workmen's compensation laws. Maximum benefits under the unemployment compensation laws were increased to $25 per week, and higher minimum wages were established throughout the Territory.

STATEHOOD PROPOSAL

On Dec. 22, 1945, the Secretary of the Interior advocated statehood for Hawaii as a part of the territorial policy of the Department of the Interior. In his message to the Congress on Jan. 21, 1946, President Truman urged that Congress accede to the wishes of the people of Hawaii that the Territory be admitted to statehood in the Union.

BUSINESS AND FINANCE

Tax collections for the Territory for the year 1944-45, (exclusive of real property taxes) totaled $33,368,835. The gross income and consumption tax base was $980,758,834. The Territorial Government's operating surplus at the end of the biennial accounting period was $5,043,004. The Territorial sinking fund ended the year with a surplus of $5,422,353.

Bank clearings for the year totaled $1,734,390,481. Internal revenue collections totaled $172,443,854. Collections in Hawaii amounted to $360 per capita, a figure which was exceeded by only nine states. The year's total collections in the Territory exceeded total collections in 14 other states. Gross postal receipts were $21,521,587, as compared with $8,673,187 for the preceding year.

Gross Revenues of the 30 non-governmental utilities operating in the Territory during the calendar year 1944 totaled $37,063,548 which was 58 per cent in excess of comparable revenues for the year 1941. The City and County of Honolulu's largest transportation system carried 224 per cent more passengers in 1944 than in 1941. Electric energy delivered increased 67 per cent, gas delivered was up 65 per cent and telephone calls were up 29 per cent for local calls and 59 per cent for toll calls.

With all inter-island surface transportation facilities in use almost exclusively for military purposes, air transportation of both passengers and freight between the islands increased greatly.

HEALTH AND WELFARE

The substantially good civilian health situation was indicated by a general mortality rate of 5.7 deaths per thousand, "the lowest ever recorded for any state or Territory," in spite of inadequate housing, difficulties in obtaining proper nutrition, and the daily irritations and sacrifices endured by the people. There seems little doubt, however, that the uncomfortable living conditions, with poor facilities for sanitation, under which a large number of the Territory's people had been forced to live because of wartime overcrowding and lack of housing facilities, augmented the spread of tuberculosis and other communicable diseases and contributed to the causes of mental breakdowns. The completion during the year of additional locally financed housing units and marked progress on the Federal Public Housing program promised early relief of this situation. Action by the Territorial Legislature, extending the scope of the Hawaii Housing Authority program, offered the hope of long range betterment of permanent housing conditions.

Although the number of persons receiving direct relief showed a steady decline during the years following the the outbreak of war, broadening of the public assistance programs, increases in allowances to meet increased living costs, and the necessity for meeting special problems arising out of war conditions, brought total expenditures by the Department of Public Welfare to a substantially higher level than existed in 1941.

EDUCATION

Since the beginning of the war, more than 800 public school units (classrooms, cafeterias, gymnasiums, auditoriums, etc.) were turned over to the military authorities of the Office of Civilian Defense. The entire school plant, or a large part of it, was given up in 26 public schools, 8 per cent of which were converted into hospitals. At the outbreak of the war, the staff of the Department of Public Instruction totaled 3,411. Almost one-half of this staff left the service during the war. These factors resulted in over-crowding, and disruption of school schedules. However, the children's morale remained at a high level, and undoubtedly contributed to the high level of community morale under conditions which might well have bred widespread hysteria and unrest. The year 1945 saw the release of some park and school facilities by the military authorities. However, many recreational areas and school buildings were still being devoted to military use.

In addition to their contribution of labor to the production of sugar and pineapples, Hawaii's school children raised more than 3,000,000 pounds of vegetables in school gardens and approximately three times that quantity in home gardens sponsored by the schools, and were given second place among all states and Territories in per capita purchase of war bonds and stamps during the year.

During 1944-45 the University of Hawaii had succeeded in rebuilding its instructional staff from the 1943 low of 77 to a total of 95, compared with the pre-war staff of 123. Student enrollment for credit was 3,500 compared with the pre-war figure of 2,765.

THE FISHING INDUSTRY

Hawaii's fishing industry was virtually eliminated by the war, and therefore sea foods, a highly important element in the pre-war diet of the islanders, had been almost completely unavailable for three years. Poultry, as well as sea foods, has continued to be scarce, thus contributing to a meat shortage which became acute during the year, particularly in Hawaii, but the efforts of the Territorial Board of Agriculture and Forestry to re-establish the industry were beginning to show results.

THE SUGAR AND PINEAPPLE INDUSTRIES

Increasingly acute adult manpower shortages and non-availability of heavy machinery for the extension of mechanization continued to handicap the production of sugar and pineapples. Since the start of the war, sugar cane land in cultivation declined almost 30,000 acres, or about 12 per cent. About one-fourth of these lands was taken for Army and Navy purposes, and the remainder was abandoned because of wartime production difficulties. The diligence of the producers and the strenuous efforts of Hawaii's school children combined to keep the percentage of decline in production at a low figure compared with the percentage of loss of lands and labor. At the close of the year, plans for the importation of 6,000 laborers for these industries were nearly completed.

The 1945 sugar crop was estimated to be 855,000 tons, and shipments to the United States were estimated to be 750,000 tons. The U. S. Agricultural Adjustment Agency, during the year 1944-45, approved payments totaling $8,210,656 to 36 plantation producers, 1,566 adherent planters, and three individual planters for compliance with requirements under the Sugar Act of 1937.

The pineapple pack for the 1944-45 season was 10,164,219 cases of canned pineapple and 7,957,424 cases of juice.

PUERTO RICO

BY MAX A. EGLOFF

DIRECTOR OF INFORMATION, OFFICE OF THE GOVERNOR OF PUERTO RICO

DESCRIPTIVE

Puerto Rico is an island 100 miles long and 35 miles wide, with an area of 3,406 square miles. The capital, San Juan, is approximately 1,400 miles from New York and 1,000 miles from Miami. The island is bounded on the north by the Atlantic Ocean and on the south by the Caribbean Sea.

Puerto Rico is sub-tropical, but trade winds blow continuously from the northeast. As a result, it has a moderate all-year climate, with an average temperature of 73 degrees in summer. Rainfall is generally abundant, although certain sections of the southern coast are so dry that crops in that region must be grown under irrigation.

HISTORICAL

Historically Puerto Rico is one of the oldest parts of Spanish America. Christopher Columbus discovered it on Nov. 19, 1493 in the course of his second voyage. He named it San Juan Bautista (St. John the Baptist). Later it was renamed Puerto Rico (Rich Port), probably because of the exceptionally fine harbor where San Juan is now located. The Indians had called the island Boriquén.

POPULATION

In 1940 Puerto Rico had a population of 1,869,255, or 544.2 persons per square mile. With the exception of some of the smaller islands in the Caribbean, no other place in the Western Hemisphere has so dense a population depending on an agrarian economy. More than 70 per cent of the people of Puerto Rico still live in the rural areas. San Juan, on the north coast, is the largest city, with a population, in 1940, of 169,247. The second and third largest cities are Ponce on the south coast with a population of 105,116 and Mayaguez at the west end of the island with 76,487 inhabitants.

THE LANGUAGE PROBLEM

The island became a possession of the United States in 1898 as a result of the Spanish-American War. Spanish continues to be the mother tongue, although English is taught in the schools. The official language is English, and most commercial correspondence with the mainland is carried on in English. The language problem, however, is still a very serious one, and the attempt to make Puerto Ricans truly bilingual has not as yet succeeded.

GOVERNMENT

The Island is governed under the Act of Congress of March 2, 1917, known as the Organic Act, and subsequent amendments. The Governor, who is appointed by the President of the United States by and with the consent of the Senate, is the executive. He holds office at the pleasure of the President.

The act provides for seven departments—Justice, Health, Interior, Education, Treasury, Agriculture and Commerce, and Labor—and the Auditor's office. The Attorney General, who is head of the Department of Justice, the Commissioner of Education, and the Auditor are appointed by the President by and with the consent of the U. S. Senate. The heads of the Departments form the Executive Council.

Every four years Puerto Ricans elect their own legislature, which is made up of a Senate with 19 members and a House with 39 members. The Island is divided into 77 municipalities. Each municipality has its own mayor and council whose acts are subject to review by the Executive Council. The Resident Commissioner, elected by the people of Puerto Rico, represents the island in the U. S. Congress. He has the right to debate, hold committee assignments, and to introduce bills, but does not have the right to vote.

1944 ELECTION RESULTS

In the elections of November 1944 the Popular Democratic Party under the leadership of Luis Muñoz Marín, which was first organized in 1940, again won—this time by an overwhelming majority in all the seven senatorial districts, and in 75 of the 77 municipalities including San Juan. The Popular Democrats not only gained control of both Houses of the Insular Legislature but elected their candidate for Resident Commissioner, Jesús Piñero.

JUDICIARY

The judiciary system consists of the Supreme Court, the District Court of the United States for Puerto Rico, the district and municipal courts, and justices of the peace. Appeals may be made in certain cases to appropriate higher courts, including the Supreme Court of the United States. The Chief Justice and four Associate Justices of the Supreme Court, the District Judge, District Attorney, and Marshal of the U. S. District Court for Puerto Rico are now appointed by the President. Statutory laws of the United States not locally inapplicable, unless otherwise provided, are in effect in Puerto Rico.

POLITICAL STATUS

Puerto Ricans are citizens of the United States, but since they are not citizens of a state they can vote in Presidential elections only when they have established residence in a state. Puerto Rico has been held by the U. S. Supreme Court to be unincorporated territory of the United States, a status differing from that of those territories which have been incorporated into the Union.

Puerto Ricans generally are dissatisfied with the Island's present political status which they consider "colonial." The Legislature has requested Congress to define alternative statuses—independence, statehood, or a form of dominion status—and to permit the people of Puerto Rico to choose. This plan was incorporated into the Tydings-Piñero bill which was introduced in Congress in May 1945. President Truman has since subscribed to the principle of self-determination for Puerto Rico.

FINANCES

Insular income was estimated at $129,851,737 for the fiscal year 1944-45, 17 per cent less than in the previous year. Of this sum, General Fund collections were estimated at $77,771,936. The decrease of approximately $27,000,000 from the total receipts for the previous year was accounted for primarily by a sharp decline in rum exports which cut U. S. Internal Revenue collections, returned to Puerto Rico, from nearly $64,000,000 to approximately $37,500,000. The income tax receipts amounted to $16,337,586.67. The Insular Public Debt rose slightly during the year, but is still only $13,064,000.

LEGISLATION

The Sixteenth Legislature met first in a special session in January, 1945 to appropriate $16,000,000 for emergency relief to be administered by the Insular Emergency Council.

The first regular session was one of the most active in the history of the Legislature. There were 587 bills passed of which 328 were approved by the Governor. Several new governmental agencies were created including the Agricultural Company to encourage the maximum development of the agricultural resources of the Island ($10,000,000), the Aqueduct and Sewer Service to build and operate public aqueducts and sewers ($3,500,000), the Coffee Insurance Corporation in the Department of Agriculture and Commerce ($5,000.000) and the Puerto Rico Labor Relations Board.

The Legislature also passed a Joint Resolution requesting Congress to define the forms of political status "that Congress may be disposed to grant upon approval of any of them by the People of Puerto Rico." This Resolution led to the introduction of the Tydings-Piñero bill in Congress.

THE ECONOMIC SITUATION

Scarcity of land and an ever-growing population have created a critical economic situation in Puerto Rico. There are only 1,000,000 acres of arable land for almost 2,000,000 persons, and the population is increasing at the rate of about 40,000 per year. It has been estimated that in another 20 years the population will have reached 3,000,000.

Puerto Rico is still predominantly agricultural. Despite the small proportion of land to people, almost half of the working population is employed on farms. There are three principal cash crops, sugar, tobacco, and coffee, of which sugar is by far the most important. The sugar cane crop of 1945 was more than 240,000 tons greater than in 1944 with production reaching 963,775 tons. Delayed by a strike at the beginning of the year, the grinding season, which normally ends July 1, continued until mid-August. Tobacco also registered a large increase over the yield for 1944.

The rum industry, which had been greatly stimulated by the shortage of liquor stocks in the United States, started to decline. The value of the rum exports fell from $34,926,156 in 1943-44 to $13,927,413 in 1944-45.

The total dollar value of exports dropped from $133,482,368 in 1943-44 to $116,203,959 in 1944-45. These figures, however, do not reflect a general recession, but rather a marked shrinkage in the sugar and rum shipments.

Insular relief was administered through the War Emergency Program, as a combination of work relief and direct aid. An average of 31,612 persons per month was employed throughout the year on work projects. The WEP contributed $1,500,000 to the Public Welfare Fund of the Department of Health, which made monthly relief payments to an average of 27,797 unemployed people.

INDUSTRIAL DEVELOPMENT

The Puerto Rico Development Company was established by the Insular Legislature in 1942 to promote the industrial development of the island, in the belief that industrialization promises a possible solution to the island's economic problems. The Development Company is authorized not only to help finance private industry, but to establish and manage industries of various kinds on its own behalf.

A glass container factory and a cement manufacturing plant are already being operated by the Company, and a paperboard mill and a ceramic plant will soon be ready to start operating. Other plans under consideration include plants for making wallboard, cotton cloth, food yeast, meat products, shoes, and vegetable oil and shortening.

The Puerto Rico Development Bank, created by the Insular Legislature in 1942, is closely associated with the industrialization program. This bank has three primary functions: (1) to carry on refinancing operations of various kinds; (2) to act as a central institution through which all financial operations of the Insular Government can be managed, and (3) to help finance the long-range industrial development of the island, through the Development company and private business.

LAND USE AND OWNERSHIP

Because the land area of Puerto Rico is so limited, in relation to population, and because land ownership has been concentrated in the hands of a comparatively small group, the question of land ownership and land use is supremely important. The Insular Legislature, in the Land Act of 1941, implemented the Joint Resolution of Congress, adopted in 1900, providing that no corporation or partnership engaged in agriculture on the island may own or control more than 500 acres of land.

The Land Act establishes the Land Authority to purchase land, primarily that held in violation of the Joint Resolution of Congress, and to distribute that land in three ways: (1) in plots of from one quarter cuerda to three cuerdas (one cuerda is slightly less than one acre) to agricultural workers (*agregados*); (2) in parcels of from five to 25 acres to individual farmers; (3) in large farms of from 100 acres and up which are leased to experienced farmers to be operated on a proportional profit basis which provides that the laborers on the farms share in the profits in addition to receiving regular wages for their work.

Up to June 30, 1945, the Land Authority had acquired a total of 43,346.24 cuerdas of land and had distributed 38,290 cuerdas. The average cost of the land purchased was $102.16 per cuerda for land distributed to the agregados, $78.50 for land for individual farmers, and $167.66 per cuerda for the proportional profit farms.

During the year 1944-45 the proportional profit farms distributed $100,000 in profits among 10,000 to 13,000 workers.

AGRICULTURE

Although sugar has always been the chief crop in Puerto Rico, an organized attempt has been made in recent years to turn farmers away from the one-crop system of sugar and the less profitable cultivation of tobacco and coffee to more diversified farming. Special attention is being given to increasing the production of food crops in order to lessen the island's dependence on other countries for its food and to raise the standard of living.

The Department of Agriculture and Commerce is encouraging subsistence farming by distributing seed and fertilizer to farmers. During 1944-45 fertilizer and seeds to the value of $104,215 were given out, and a total of 21,000 acres benefited by this planting program. The production of vegetables increased 22 per cent over that of 1943-44.

Animal husbandry, soil conservation, and reforestation are also being encouraged by the Department of Agriculture.

LABOR

Organizing activity among labor greatly increased during the past four years. At the beginning of the year there were two island-wide labor organizations—the Free Federation of Labor, affiliated with the American Federation of Labor, and the General Confederation of workers, formed in 1940. In the spring of 1945, however, the General Confederation split into two groups and, as of October, 1945, the breach had not been closed.

The strike in the sugar industry, which lasted 36 days and involved 140,000 workers, was the most serious labor dispute of 1945. It was adjusted when the Commodity Credit Corporation raised the benefit payment, thus permitting employers to increase the wages of agricultural workers by 23 cents a day and mill workers by 3 cents an hour.

There were 53 other strikes which involved a total of 5,230 workers. One of these was in the Puerto Rico Communications Authority, and another was at the plant of the Puerto Rico Glass Corporation, a subsidiary of the Puerto Rico Development Company. The latter lasted 86 days.

The Mediation and Conciliation Service disposed of 206 situations involving 352,510 workers. Of these situations, 180 were disputes between employers and employees involving 308,248 workers.

HEALTH

The birth rate of Puerto Rico, already extremely high, rose slightly in the calendar year 1944 from 39.6 to 41 per 1,000 population. The death rate also increased fractionally, from 14.7 per 1,000 to 14.8. Malaria and syphilis were the leading causes of sickness, with diarrhea, enteritis, and tuberculosis the leading causes of death. At the present rate of births and deaths there is a net increase in the population of Puerto Rico of some 40,000 people each year.

The attempt to control venereal disease was continued by the Insular Department of Health during the year. A total of 13,831 cases of syphilis and 5,914 cases of gonorrhea were treated in the clinics and 5,466 cases were treated in the Rapid Treatment Centers. Three Rapid Treatment Centers and four Diagnostic Centers operated during the year.

Although tuberculosis continues to rank second as a cause of death, it has shown a slight but steady decrease from 1940 when the rate was 260 per 100,000 population to 1944 when the rate was 215.4. In addition to the work done at the 20 tuberculosis clinics of the public health units throughout the island there is an X-ray Traveling Unit which reaches places where there are no fixed Units. There are five tuberculosis hospitals with a bed capacity of 1,500.

EDUCATION

Enrollment in the public schools of Puerto Rico increased slightly during 1945. Total enrollment for 1944-45 was 329,000 or 8,000 more than in the previous year. The need for additional school buildings and teachers is acute. Of a total school population of 648,230 less than half are in school and of those who are enrolled approximately 50 per cent attend school for half days only.

The University of Puerto Rico, located in Río Piedras, had an enrollment of 4,250 in 1944-45. It includes colleges of Education, General Studies, Natural Sciences, Engineering, Commerce, Social Sciences, Pharmacy, Agriculture, Humanities, Sciences, and Law. A new School of Public Administration was initiated in September 1945, and schools of nursing and medicine and a Social Research Center are being planned for the near future.

PUBLIC UTILITIES

The Water Resources Authority, an Insular Government agency established to develop the power resources of the island, acquired ownership of the properties of the Porto Rico Railway, Light and Power Company and the Mayaguez Light, Power and Ice Company from the Federal Works Administration in 1944. This purchase concentrated in the Water Resources Authority practically all the power resources of the island. The Authority is now developing water power with the aim of lessening the island's dependence upon imported fuel oil.

PUERTO RICO IN THE WAR

The geographical location of Puerto Rico makes it the most important base in the outer defense system of the Caribbean area. Owing to this fact, the island was the scene of great military activity of the armed forces of the United States. Important air and naval bases were established, and large sums of money were spent in these works.

Although shipping facilities were considerably curtailed in 1942 and 1943 no serious shortages developed, and it was unnecessary to ration any commodities except gasoline and tires. During the fiscal year 1944-45 shipments to Puerto Rico steadily increased to nearly their pre-war level with a total of 833,555 long tons of cargo entering the ports.

Puerto Rican troops saw service on all fighting fronts. In all some 60,000 Puerto Ricans were inducted into the United States Army. The 65th Infantry Regiment operated in Panama, North Africa, Sicily, Italy, France, and Germany, and the 246th Quartermaster's Battalion also saw service in Europe. A Puerto Rican Marine Corps General distinguished himself in the Okinawa campaign.

Puerto Rico gave full support to all the War Loan Drives, subscribing a total of approximately $85,000,000, of which about $50,000,000 were subscribed by the Insular Government.

THE PHILIPPINE ISLANDS

By Richard R. Ely

Special Assistant to the United States High Commissioner
to the Philippine Islands

AMERICAN REOCCUPATION

The liberation of the Philippines was the outstanding event of the year 1945. The campaign which began on Oct. 20, 1944 with the landing of American troops on the island of Leyte was followed by the major landing north of Manila on Lingayen Gulf on Jan. 9. The first American troops entered Manila on Feb. 3; Bataan and Corregidor had fallen by Feb. 28. Before the six-month campaign to free Luzon was ended, many other landings had been made in widely separated areas. On July 9 General Douglas MacArthur announced that "the Philippine campaign can be regarded as virtually closed."

POLITICAL AND GOVERNMENTAL STATUS

The legal status of the Philippine Islands is that of an unincorporated territory of the United States. Under the statutes now in force, complete independence of the Islands is scheduled for July 4, 1946 or sooner if the President of the United States shall so proclaim, and there has been wide speculation as to whether a date prior to July 4, 1946 will be fixed. To clarify the matter, President Truman has stated he does not intend to consider advancing the proclamation of Philippine independence to a date earlier than July 4, until the necessary program for rehabilitation has been worked out and until there has been a determination of the fundamental problems involved in mutual relationship after independence.

The Independence Act of 1934 specifically sets forth the general powers and authority reserved to the United States during the transitory period of the Philippine Commonwealth Government. The public debt may not exceed limits now or hereafter fixed by the Congress of the United States; trade relations with the United States continue to be governed exclusively by Congress; Philippine legislative acts affecting currency, coinage, imports, exports, and immigration do not become effective until approved by the President of the United States; foreign affairs remain under the direct supervision and control of the United States; all acts passed by the legislative body must be reported to the Congress of the United States; decisions of the courts of the Commonwealth Government are subject to review by the Supreme Court of the United States; citizens and corporations of the United States enjoy in the Commonwealth of the Philippines all the civil rights of citizens and corporations of the Philippines. The United States reserves the right to maintain such military and other reservations in the islands as may be deemed necessary for the mutual protection of the Philippine Islands and of the United States.

There is also reserved to the United States the right to intervene under certain conditions set forth in the act. During the period of the Commonwealth Government a United States High Commissioner "shall be the representative of the President of the United States in the Philippine Islands."

In September the Philippine Commonwealth, through President Osmena, ratified adherence to the United Nations charter—the first document of this kind to have been ratified formally by the Philippine Government. The Commonwealth Government was represented at the several United Nations conferences held during the year. It joined the United States as a member of the Far Eastern Advisory Board which held its first meeting in Washington on Oct. 30, 1945.

CITIZENSHIP

Citizens of the Philippine Islands owe allegiance to and are under the protection of the United States but are not citizens thereof. Those who have given honorable service of not less than three years in the United States Army, Navy, Marine Corps, or Coast Guard may become citizens of the United States. As one means of recognizing the loyalty of the Filipino people during the recent war, the 79th Congress took under consideration measures that would greatly extend the privileges of naturalization now granted to Filipinos. For purposes of immigration the Philippine Islands are considered as a separate country, and the number of immigrants that may enter the United States therefrom during each fiscal year is limited to 50.

GOVERNMENT ORGANIZATION—EXECUTIVE

Under the constitution drafted in accordance with the provisions of the Independence Act of 1934, the executive power is vested in the President of the Philippines elected by the Filipino people for a six-year term and ineligible for reelection. By an amendment to the constitution, approved by the President of the United States on Dec. 2, 1940, the term of the President and of the Vice President was changed to four years; the tenure of the President was limited to eight consecutive years. The President controls all executive branches and has general supervision over local governments. He appoints all high officials of the government and all minor officials not otherwise provided for. The President is commander in chief of the armed forces of the Philippines; in emergencies he may suspend the privileges of the writ of habeas corpus or place the Islands under martial law. He has power to grant reprieves and pardons and to remit fines and forfeitures, after conviction, for all offenses except in cases of impeachment.

There are nine executive departments. Three of the 12 cabinet members—the Commissioner of the Budget, Secretary to the President, and Resident Commissioner in Washington—are without portfolio. Since the reestablishment of the Commonwealth Government in Manila, President Osmena has appointed six cabinet members, leaving three vacancies. The Auditor-General is appointed by the President for a ten-year term and is not eligible for reappointment. The Philippine Resident Commissioner to the United States is appointed by the President of the Philippines.

LEGISLATIVE AND JUDICIAL

Under the Philippine constitution, the legislative power was originally vested in a unicameral body called the National Assembly to meet every year in regular session for not more than 100 days. Under an amendment of the constitution, the Congress is composed of a House of Representatives of 98 members and a Senate of 24 members elected at large every six years. The membership of the House of Representatives, apportioned on the basis of population, is elected by popular vote every four years. Special sessions are limited to 30 days.

Because of the Japanese invasion, the Congress had not assembled since 1941. On June 9, 1945 President Osmena called the first Philippine Congress into its first 30-day special session. Of the 98 representatives elected in 1941, 70 were present; 11 had lost their lives during the war; and the remainder were detained under suspicion of collaboration. Of the 24 senators, two had died and seven were under detention. Manual A. Roxas was chosen president of the Senate and José Zulueta speaker of the House.

Close control and supervision over the natural resources of the Islands is given to the Congress. This body is empowered to legislate with reference to public lands, timber, and mining. Prior to 1935, legislation on those subjects required the approval of the President of the United States before becoming effective. Heads of departments may be heard before the Congress. Veto provisions are similar to those in the United States Constitution, except that the President may veto specific items in appropriation, tariff, and revenue bills.

Under the constitution, the judicial branch of the Commonwealth Government is composed of the Supreme Court, Court of Industrial Relations, Courts of First Instance, justices of the peace courts, and municipal courts. A recent Act of the Commonwealth Government provides a People's Court to try accused collaborators.

REHABILITATION

Arriving in central Philippines amid the chaos created by the Japanese occupation, President Osmena found the people hungry and ill-clothed, without necessary medicines, and the school system wrecked. With the battle still going on, he began preparations for restoring order, setting up local governments and opening schools and post offices in the areas freed from enemy control. Nearly 800 of the 1,050 post offices have been reopened. Twice the President returned to the United States to confer with the President of the United States on matters affecting relief for his people.

In May, Senator Tydings, chairman of the Filipino Rehabilitation Commission, established by Act of Congress approved June 29, 1944, headed a mission to Manila to investigate conditions and to consider measures required as a result of destruction wrought by the Japanese, and in July the President sent Paul V. McNutt to the Philippines on a similar mission. All of them returned with stories of great distress. The devastation of Manila was beyond description. Tens of thousands of persons were homeless and without food or medicine; the people were almost solely dependent upon the United States Army for food; living costs in Manila were eight times greater than in pre-war days; inflation and black marketeering were rampant; the large cities and many of the towns were in ruins; the principal industries—sugar, copra, hemp—were ruined. Transportation was paralyzed; the absence of water-craft, motor vehicles, and trucks crippled the entire flow of commodities and goods. Most bridges were destroyed; light, water, and communications systems were almost totally destroyed. The textile mills had suffered great damage. Business and commerce were restricted or liquidated. Filipino members of the Filipino Rehabilitation Commission have estimated that repairing war damage in the Philippines will cost $1,300,000,000. Agrarian unrest, which existed prior to the invasion, was increasing and still constitutes a serious problem.

A beginning has been made to remedy these conditions. The Federal Government has rendered valuable assistance. The Treasury Department set up a temporary Banking Division to meet immediate needs. This has now been closed as no longer necessary. The Army provided free distribution or sale, at ceiling prices, of essential goods. Engineers were drawn from the Army, the Navy, and the FWA to go to the Islands to determine the extent of the damage to roads, bridges, and port facilities and lay plans for their restoration. The War Shipping Administration and the United States Maritime Commission assisted in supplying cargo space to the Philippines and in transferring additional boats for inter-island transportation. The UNRRA has allotted $3,000,000 for emergency relief supplies. The FEA sent a mission to the Philippines to arrange for the procurement of strategic commodities, such as copra, fibers, and sugar, to assist in reestablishing private trade between the Islands and the United States.

The President of the United States showed his interest by directing the heads of the various government departments and agencies to continue their assistance to the Commonwealth Government. One of the first moves resulting from his directive was the appointment of a special assistant to the Attorney General to investigate collaborationist activity in the Islands. The 79th Congress gave special attention to the two most pressing problems confronting the Philippines—the payment of war damages and the post-independence trade relations with the United States. Several measures were introduced to bring about the restoration of normal economic conditions: one which became a law in November would make available to the treasurer of the Islands Philippine funds accumulated in the United States Treasury from the processing tax on Philippine imports. Enemy occupation of the Islands prevented the holding of elections in 1943 and 1945 as provided in the constitution. There is no provision in the constitution for such elections to be held at any other time, and the terms of all the members of the House of Representatives and of two-thirds of the members of the Senate were due to expire on Dec. 30, 1945. To deal with the situation, the President of the United States recommended, and the Congress has passed, legislation providing for national elections not later than April 30, 1946 and for the convening of the newly elected Philippine Congress not later than May 28, 1946.

UNITED STATES HIGH COMMISSIONER

Paul V. McNutt was nominated on Sept. 6 by the President to be United States High Commissioner to the Philippines. His appointment was confirmed by the Senate on Sept. 14. From Sept. 16, 1942 to Sept. 14, 1945, the authority of the High Commissioner was vested in the Secretary of the Interior. On that date the powers and duties of the office were re-transferred to the High Commissioner by Executive Order. Commissioner McNutt had previously served as High Commissioner from Feb. 1937 to July 1939. He left Washington on Nov. 18 for the Philippine Post, and upon arrival enumerated the major problems existing, as follows: Economic rehabilitation and restoration of stable commerce, with emphasis on industrialization of the Islands; physical reconstruction of the war-battered areas; solution of agrarian unrest, stemming largely from absentee landlordism; restoration of a stable currency and elimination of inflation; and punishment of collaborators and unification of dissident elements.

TRADE

No authentic statistical data since the invasion is available. The Islands' economic and financial problems are on the way to solution; normal inter-island commerce and foreign trade are being restored. Prices of a number of commodities, including such important items as rice and cotton cloth, began to decline in July owing to expected arrivals of commercial goods from the United States. In most instances, however, they continue far above established ceiling prices. Arrangements were completed in July for the Philippine Civil Affairs Unit of the United States Army to turn over its stocks of civilian goods in Cebu, Negros, Panay, and Bohol to commercial dealers on Aug. 15 and to make a similar transfer in Mindanao on Sept. 1. Both inter-island and trans-Pacific facilities are improving, but still are far from adequate. The Metropolitan Transportation Service was organized to take over 250 trucks and buses formerly operated by the Emergency Control Administration. The first commercial ship left Manila for the southern islands in June; the second one sailed for Iloilo about the end of July with approximately 600 passengers. An average of 800 civilian passengers and 90 tons of civilian traffic a day was being handled by the Manila Railroad Company at the end of July. The properties of that company are about to be turned over to civilian management.

Under the sponsorship of the War Shipping Administration, several American steamship lines were designated to handle shipping out of Pacific Coast ports. The first civilian ship bringing commercial cargo to the Philippines arrived in Manila late in August. Another arriving in September brought the first commercial export of American textiles, consisting of 6,000,000 linear yards of cotton goods allocated by the FEA. In October a shipment of 2,000,000 tons of Manila hemp arrived in the United States, the first substantial shipment of the fiber since the war. The United States Maritime Commission approved the transfer of 16 coastwise vessels to Philippine registry. The Pasig River has been reopened to traffic. Air transportation will be resumed as soon as airworthy planes are secured. Two local air companies are expected to begin operations in December. The Bureau of Animal Industry opened an office to assist farmers to obtain livestock. The number of carabaos, the universal work animal of the Filipino farmer, is greatly diminished. Only half of a normal sugar crop is expected in the 1946-47 season. Unfavorable weather conditions and damage to irrigation facilities have delayed rice planting. Both sugar and rice are being imported.

The rehabilitation of industrial establishments goes forward slowly. The largest of Manila's cordage factories resumed operations on June 1 and continued production throughout July. Several pre-war agencies have been revived—the National Development Company, the National Coconut Corporation, the National Rice and Corn Corporation, and the National Power Corporation. The Philippine Congress gave attention to the development of the fishery industry. Licenses to resume business have been granted to seven insurance companies.

FINANCES

The whole system of taxation and revenue has been destroyed. Finances are gravely depleted and in a chaotic condition owing to the various currencies in use. The Japanese had put in circulation some 40,000,000 pesos in Philippine bank notes previously redeemed and against which there was no reserve and had printed billions of dollars of worthless paper money. After the fall of Manila the President of the Philippines had authorized branches of the Philippine National Bank to issue emergency bank notes; the United States Army had authorized the issuance of millions of pesos to guerrilla organizations in order to maintain fighting units, and had brought Victory pesos with which to pay United States troops and Filipino labor, etc. Unknown quantities of the old pre-war pesos are still in circulation. Coins amounting to $8,500,000, which were dumped in Manila Bay in the early days of the invasion to prevent their falling into enemy hands, have been salvaged from the mud of the wreck-filled bay.

The Philippine Congress has dealt particularly with economic and rehabilitation problems. Its legislation included an act to rehabilitate the Philippine National Bank. That bank was opened for business on July 23, taking over assets of the Banking Division of the Philippine treasury. It now has seven branches. Six other banks have since been reopened. The Congress amended laws governing the use of the Exchange Standard Fund so that about $25,000,000 could be released for general expenditures; it appropriated $10,000,000 to be loaned to the Manila Railroad Co., arranged to grant loans to sugar planters; and amended the Internal Revenue Code with a view to increasing taxes.

VIRGIN ISLANDS OF THE UNITED STATES

By Morris F. de Castro

Government Secretary of the Virgin Islands

DESCRIPTION

The Virgin Islands of the United States, formerly known as the Danish West Indies, were acquired by the United States by purchase from Denmark in 1917. This group comprises three islands: St. Croix, 82 square miles in area, with a population in 1940 of 12,902; St. Thomas, 32 square miles, with a population of 11,265; St. John, 19 square miles, with a population of 722; and approximately 50 smaller, uninhabited islands. St. Thomas lies 39 miles east of Puerto Rico, and 1,400 miles southeast of New York; St. Croix, 59 miles to the southeast of Puerto Rico, and 40 miles south of St. Thomas; and St. John, three miles east of St. Thomas.

The Virgin Islands of the United States constitute the latest addition to United States territorial possessions, acquired in 1917 from Denmark in consequence of the threat of compulsory sale to Germany, already foreshadowed by evidence of German penetration. The purchase price was $25,000,000. This sum is by far the largest ever paid by the United States for the acquisition of territory. It represents $295 per acre, as compared with $0.02 for Alaska, $0.03 for California, $0.04 for Louisiana, $0.14 for the Philippines, $35 for the Canal Zone. Since the transfer, it is estimated that the Federal Government has spent over $13,000,000 for the benefit of the Islands.

GOVERNMENT

The seat of government is at Charlotte Amalie, on the island of St. Thomas, whose harbor is one of the finest in the Caribbean. The Organic Act of 1936 prescribes that the Governor and the Government Secretary shall be appointed by the President, while the Administrator for St. Croix and other heads of departments are appointed by the Secretary of the Interior. The two municipalities of St. Thomas—St. John and St. Croix, corresponding to the three largest islands, each elects by universal suffrage a municipal council with power over municipal finances subject to review by the Governor. These councils also confirm the Governor's appointments of municipal officers. The Governor is Charles Harwood.

ECONOMIC SITUATION

The economic future of the island of St. Thomas, an excellent bunkering port, must of necessity continue to revolve around the activities of its harbor and its natural beauty and attraction for tourists and winter residents. Temporarily disrupted because of abnormal shipping conditions incident to the war, and substituted during the past two years by a tremendously improved economy resulting from the suddenly expanded liquor industry, the harbor of Charlotte Amalie began to show signs of a recurrence of its once healthy activity, as neutral ships again were permitted to call here for bunkers.

A tremendous advance for the islands was the recent merging of a Puerto-Rican airline, servicing the Virgin Islands and Puerto Rico, with one of the large national airlines bringing new, modern, and fast air equipment to the islands, as well as the recent extension of daily air service from the mainland to the island of St. Thomas by another American airline. The tourist possibilities thus opened are vast.

Here, as possibly in no other place under the American flag, Americans seeking relief from sweltering summers and zero weather, may find perpetual sunshine, equable climate, good beaches, excellent sport fishing, horseback riding on mountain trails with unsurpassed views, and may live in substantial comfort among a friendly, law-abiding, and intelligent people.

As for centuries past, the economic story of the island of St. Croix still has to do with the growing and processing of sugar cane, even though the cane acreage of the island is now less than one-third of what it was in the island's heyday. Literally a drop in the bucket of the world's sugar market, St. Croix this year produced 4,040 tons of raw sugar, while 3,200 tons of cane were processed for rum, but this—the major economic factor of the island of St. Croix—is perennially handicapped by weather, marginal low yield land, and sugar prices.

FINANCE

For the fourth successive fiscal year the Municipality of St. Thomas and St. John operated without a Federal deficit appropriation. On June 30, 1945, the treasury of the Municipality of St. Thomas and St. John showed a revenue surplus of $104,919.71. Conversely, the Municipality of St. Croix operated with a Federal deficit appropriation of $100,000. Of this amount, approximately $51,000 was unexpended as of June 30, 1945.

The actual revenues of the Municipality of St. Thomas and St. John amounted to $1,257,416.53. The comparable figure for the fiscal year ended June 30, 1944 was $1,617,705.36. The budget for the Municipality of St. Thomas and St. John carried total appropriations of $1,152,496.82. The revenues of the Municipality of St. Croix amounted to $515,383.28 compared with $262,684.89 in the preceding year. The budget for this municipality carried total appropriations of $589,558, of which local revenues were estimated at $489,558, and a Federal appropriation of $100,000. Of this Federal appropriation, approximately $51,000 was not expended. This unexpected situation was owing to an unprecedented increase in income taxes from the rum industry during the fiscal year 1945.

The wide variation in revenues of the Municipality of St. Croix for the years 1944 and 1945, was caused almost entirely by a corresponding rise and fall of income taxes from the rum industry. This unusual revenue, resulting as it did from increased distilleries' profits, could not be counted upon as a stable source of future revenue. Prices and profits dropped suddenly when the distillation of beverage spirits was permitted by continental producers.

The Virgin Islands Company which had lost $300,000 up to 1944, made a profit of over $700,000 in the last fiscal year and paid an income tax of $207,000 to the Municipal treasury of St. Croix in 1945.

PUBLIC WORKS AND EDUCATION

Owing to the continuation of the war emergency, the Public Works Department confined itself to the accomplishment of work which could be done with materials obtainable in the islands and in Puerto Rico. Education in the Municipality of St. Thomas and St. John enjoyed more adequate financial support. Vocational training was continued and facilities improved.

During the year, considerable attention was given to the major problem of electric light and power conversion as a post-war necessity. In St. Thomas the electric current used is 220 volt direct current and is supplied by a private company. In St. Croix, the towns of Christiansted and Frederiksted are equipped with 110 volt direct current systems furnished by a private company. Operating costs are high, resulting in abnormally high rates to consumers. The rural districts of St. Croix, however, are supplied with a low rate 110-volt alternating current service by the Rural Electrification Division of the Virgin Islands Company.

HEALTH AND SOCIAL SERVICES

During the year under review epidemics were gratifyingly scarce and the general health of the islands was good. Improved finances permitted the Department of Social Welfare to render more adequate assistance to the poor in the form of cash assistance, community grants, services of various kinds, and institutionalization of the aged. In both municipalities there was a gratifying improvement in the social services and especially in child welfare work. The most serious problems throughout the year was that of unemployment. This situation was aggravated by the cessation of military projects and the decline of private industries as a result of decreased rum shipments and general business decline.

LEGISLATION

The Legislative Assembly of the Virgin Islands this year enacted inadequate ordinances to govern the production, inspection, and sale of milk, and the sale of meat and meat products. A fairly satisfactory law regarding the practice of medicine and its allied sciences was adopted and a uniform law concerning actions to declare void or dissolve the marriage contract. Outstanding items of legislation in St. Thomas were an antidiscrimination law determining the right of all persons to enjoy the facilities offered by public places and businesses on the island of St. Thomas and a law to protect the public health by controlling the spread of endemic typhus fever. In St. Croix, the Municipal Council adopted ordinances creating a Homestead Commission, a Recreation Commission, a Municipal Police Commission, and a salary scale for teachers.

THE VIRGIN ISLANDS COMPANY

This is a government corporation incorporated by an ordinance enacted by the Municipal Council for the Municipality of St. Thomas and St. John in April 1934, to manage and operate certain lands, buildings, and factories, owned by the United States, under an operating agreement between the United States and the Company. The purpose of the Company is to rehabilitate industry within the Virgin Islands for the benefit of the people therein, thereby stabilizing employment and improving the standard of living.

During the fiscal year ended June 30, 1945, the Company cultivated approximately 2,800 acres of administration sugarcane. Because of severe drought conditions, which caused the privately-owned La Grange Sugar Factory to close in 1940, the Company now grinds the entire crop of sugarcane produced on the Island of St. Croix, and, therefore, is the only market for approximately 550 small growers of sugarcane. During the 1945 fiscal year, the Company ground 44,725 tons of sugarcane, of which 14,307 tons were purchased from Federal homesteaders and small growers, producing 4,040 tons of raw sugar.

During the current fiscal year the Company manufactured 196,120 proof gallons of rum and has an excess of 533,955 proof gallons aging in the Company's warehouses.

During eleven years of operation, The Virgin Islands Company has rehabilitated the sugar industry and kept it alive for economic reasons; developed a profitable rum industry to offset the losses of the necessary sugar industry; increased commerce; furnished employment to approximately 1,000 families; paid to the Municipality of St. Croix amounts equal to the taxes a regular commercial corporation would be assessed, thereby decreasing deficit appropriations from the Congress of the United States; and improved living conditions in St. Croix through regular employment and better housing facilities.

POST-WAR PROGRAM

The post-war program for the Virgin Islands has centered around the projected construction of public works, health, and sanitation facilities, for which Congress has authorized appropriations totaling $10,000,000. New hospital facilities, sanitation and fire protection, sewers and water systems, sewage treatment and disposal, water supply facilities, schools and educational buildings, waterfront improvements, highways, roads and streets, recreational facilities, telephone and radio communication, malarial control, and slaughterhouse and market facilities, are included in this five-year program authorized to be constructed by the Federal Works Agency. Actual construction was withheld because of the war necessity of conserving critical material but it is expected that an appropriation of the first $2,000,000 will be made in time to permit the beginning of construction early in 1946.

GUAM AND AMERICAN SAMOA

By Richard H. Hughes
Lieutenant, SC., USNR; Navy Department

GUAM

The recorded history of Guam goes back to Magellan's voyage around the world, in the course of which he touched at Guam. Because of its harbor, Guam became a stopping place for Spanish galleons carrying treasure from Acapolco to Manila and was a center for the Spanish empire in the Pacific. During the sixteenth century a college was established there, and natives of the island traveled to Manila and to Madrid. As the Spanish empire declined, Guam's fortunes also declined, and by the middle of the nineteenth century the Island was important primarily as a harbor to which the American and English whaling ships, bound for the Bering Sea, could repair for shelter from typhoons and to take on water and fresh vegetables.

When the Spanish-American war broke out an American squadron en route to Manila, sent a warship to capture Guam. The capture was effected without any resistance on the part of the Spanish garrison. By the Treaty of Paris, jurisdiction over Guam was given to the United States in 1898. By executive order of President McKinley, the Secretary of the Navy was directed to provide for the government of the Island, and a naval government was established which remained as the sole authority on Guam until the island was captured by the Japanese on Dec. 10, 1941. Guam remained under Japanese domination until July 1944, when it was recaptured by the United States. At the present time Guam is under military government incident to military operations for its recapture and pending re-establishment of the prewar form of Naval government.

AMERICAN SAMOA: HISTORY

In 1872 the harbor of Pago Pago, in Tutuila, was ceded to the United States for a naval and coaling station, and in 1878 rights of freedom of trade and extra-territorial jurisdiction in Samoa were granted. On June 14, 1889, a treaty, to which the United States, Germany, and Great Britain were parties, proclaimed the Samoan Islands neutral territory, with an independent government, the natives being allowed to retain their own laws and customs. A Supreme Court of Justice, presided over by an American citizen, was established for the settlement of civil and criminal cases involving foreigners.

The kingship was abolished in 1899, because of internal disturbances, and by the Tripartite Treaty of Nov. 14 of that year, Great Britain and Germany renounced, in favor of the United States, all rights over the islands of the Samoan group east of 171 degrees west longitude, the islands to the west of that meridian being assigned to Germany. After the First World War a mandate over the former German islands was established, administered by New Zealand.

GOVERNMENT

A United States Naval Station is located at Pago Pago, which offers the only good harbor in Samoa and is said to be the best in the South Seas. The commandant of this naval station is also the governor of American Samoa, holding his commission from the President of the United States. He appoints officers and frames laws or ordinances, but native customs not inconsistent with the laws of the United States are not changed without the consent of the people.

The Islands are organized in three political divisions corresponding to the old Samoan political units. In each such district there is a native governor, county chiefs and village chiefs. All of these officials are appointed by governmental authority although each district governor has indirect control of the county chiefs, and the county chiefs of the village chiefs.

The judicial power is vested in a High Court, six District Courts and 44 Magistrate Courts. All judicial matters are handled exclusively by Samoans, with the exception of the High Court, which is presided over by the Chief Justice of Samoa, who is either an American civilian or naval officer. The other members of the High Court consist of either two or four Samoans, depending on the gravity and importance of the case. There is a Samoan Guard of 142 men, under the jurisdiction of the U. S. Navy.

The costs of government are met by taxes, imports, and the earnings of government-owned corporations such as the transportation service and the bank. There is a 1 per cent tax on freehold property, a tax on lessors in the amount of 5 per cent of the rent received, and a poll tax. License fees on stores and import duties are also important sources of revenue to the government.

GEOGRAPHY

The total area of American Samoa is 76 square miles, and it has a population (July 1, 1945) of 16,493 Samoans. The Island of Tutuila, 70 miles from Apia, has an area of 40.2 square miles, and a population of 13,948 (including the Island of Aunu'u). Swain's Island, annexed in 1925, is from a mile and one-half to two miles in diameter and has a population of 130.

AGRICULTURE AND TRADE

There are no public lands in Samoa. Nearly all of the land is owned by the Samoans and, with a few exceptions, can not be sold to anyone but another Samoan.

The soil is fertile, and abundant crops of taro, breadfruit, yams, coconuts, pineapples, oranges, and bananas are raised. Copra of excellent quality is produced for export. In 1942 the Island exported 107 tons of copra, valued at $7,212. Other exports are reed mats and curios. During the fiscal year ended June 30, 1941 imports totaled $263,703 and exports totaled $93,839.

EDUCATION

In 1945 the Samoan Government was maintaining 42 public schools, with 94 Samoan and four white teachers, and a total of 3,300 enrolled pupils. There are also four secular schools, with an additional enrollment of about 500 pupils. Education is compulsory between the ages of seven and 15, and it is expected that a complete high school education will be offered in the near future. The census of 1940 showed that illiterates of 10 years of age or older numbered 540, or 6.3 per cent of that age group.

HEALTH

There are no privately practicing physicians or dentists. Operating in conjunction with the local hospital is a mobile child health clinic, which offers medical treatment to all of the children on the Island of Tutuila.

TRANSPORTATION, COMMUNICATIONS, AND BANKING

About 45 miles of roads have been constructed on the Island of Tutuila. There are no roads on any of the other islands of American Samoa. There is a United States Naval radio station on Tutuila, open to commercial traffic which reaches New Zealand, Australia, Honolulu, the United States, and other islands in the Pacific. The Bank of American Samoa is the only bank and conducts all types of commercial banking business. The fast mail steamers of the Matson Navigation Company touch here on their regular trips from the United States to Hawaii, Fiji, New Zealand and Australia.

THE DISTRICT OF COLUMBIA

By W. Reed West
Professor, The George Washington University

DISTRICT SUFFRAGE

There was much public discussion in 1945 of proposals to grant some form of suffrage to the people of the District of Columbia. Certain of these proposals have centered around the granting of some form of representation in Congress and the electoral college. Others have been designed to relieve Congress of its burden of enacting detailed legislation for the District by providing for a government of locally elected officers. However, none of these proposals has got beyond the stage of public agitation or the introduction of bills in Congress.

THE VIRGINIA BOUNDARY

In a Supreme Court decision in 1931 (Washington Airport *v.* Smoot Sand and Gravel Corporation, 283 U.S. 348), it was held that the District boundary with Virginia followed the high-water mark of the Potomac on the Virginia shore as it existed at the time the District was created in 1791. That line was never exactly determined and marked, and, moreover, there have been considerable alterations in recent years through the construction of the Washington National Airport, the Mount Vernon Memorial Highway, and the Pentagon Building and its approaches. There was uncertainty in respect to which authority, Virginia or the District, had police jurisdiction in the area below the old high-water line. By Act of Congress (Public 208), subject to approval by Virginia, the boundary is now established at high-water mark on the Virginia side as it now exists and along the pierhead line in Alexandria. If alterations of the line occur through natural causes or through Federal construction or through a change in the Alexandria pierhead line, the boundary is to follow the line as so changed. The United States retains concurrent jurisdiction over the territory included between the old line of 1791 and the new line. Virginia is to consent to exclusive Federal jurisdiction over the Washington National Airport, subject to some provisions retaining certain powers of taxation, court process, and beverage control. The Federal Government reserves the right to apply certain aspects of its criminal code to the airport and the George Washington Memorial Parkway.

While there may be imperfections

in these arrangements it was felt that the main problem was to eliminate the no-man's land from the point of view of criminal jurisdiction that had existed in the disputed area. This appears to have been accomplished. It is not anticipated that there will be objections on the part of Virginia to the proposed arrangement since the Virginia legislature approved its main provisions in 1942.

DISTRICT INSTITUTIONS

New salary scales for the police and fire departments were provided in Public 122 and 151. Increases for teachers and school officials were provided in Public 158 and 160-A. The new scale for elementary school teachers ranges from $1,900 to $3,300, for junior high school teachers from $1,900 to $3,700, and for senior high school teachers from $2,100 to $3,700. The appointment of temporary teachers at basic salary rates was authorized (Public 44). The salary of the executive secretary of the Nurses' Examining Board was increased in Public 117.

In order to bring the law to present accepted practice the act in respect to feeble-minded persons admitted to the District Training School at Laurel, Maryland, has been amended so as to require that when such persons have an estate the cost of maintenance may be deducted from the estate, and where there is no estate that the District may require reimbursement from the father, mother, husband, wife, and adult children of the person admitted (Public 46). Another act provides that, in the case of defendants before the police or juvenile courts, where there is prima-facie evidence of an unsound mind, the court may send the defendant to the Gallinger Municipal Hospital for examination (Public 110). Another act removes restrictions upon the appointment of retired officers of the United States Public Health Service or retired civilian employees of the United States Government or of the District government as Superintendent of Gallinger Municipal Hospital (Public 131).

CORPORATIONS

Under pre-existing law, religious and missionary societies were permitted to include in their bylaws a provision that less than a majority might constitute a quorum for the transaction of business. There seemed to be no good reason why other benevolent, charitable, educational, literary, musical, and scientific societies should not have this privilege, especially since there are in Washington such societies with a nationwide membership that makes a quorum of a majority difficult to obtain. The privilege was granted to such societies in Public 233. Another act (Public 235) relieved trust companies of the obligation of filing certain reports.

EMERGENCY LEGISLATION

As a war measure, the Minimum Wage Board was authorized to issue permits to employ women more than eight hours a day with pay at a time-and-a-half for overtime. This act, which was to expire June 30, 1945, was extended for one year. The language of the original act, authorized such permits when "essential to the war effort" remains unchanged (Public 41).

The final date for the clearance of alleys under the Alley Dwelling Act of 1934 was extended for another year (Public 129), and the Emergency Rent Act was extended to Dec. 31, 1946 (Public 242).

Under the District Code, certain charitable, religious, and educational institutions, and the like, were exempted from taxation while their property was "occupied and used" by the institution named. During the war, some of these institutions offered some of their property for use in the war effort for a compensation covering maintenance and depreciation. Since such property was not then "occupied and used" by the institutions themselves, the Commissioners had ruled that they were no longer exempt from taxation upon such property. As a measure of equity, an act (Public 237) exempts these institutions from taxation where the property is used by the United States Government or the

American Red Cross, where the compensation does not result in the "receipt of rent or income" within the meaning of the law.

The War and Navy Departments have advised men released from service that they should record their certificates of service or discharge with the clerk of the court or other record office in their home counties. However, the United States District Court for the District of Columbia appeared to have no authority to make such records, and even if made they would probably have had no legal efficacy. As a result, Congress authorized the Recorder of Deeds of the District to make such records without charge to the veteran (Public 45). Another act (Public 241) provided for free copies of public records of marriages and the like for use in presenting claims to the Veterans Administration.

MISCELLANEOUS LEGISLATION

An epidemic of rabies in Washington and its vicinity led to legislation (Public 128) authorizing the Commissioners in the presence of rabies in the District to issue proclamations not only requiring muzzling, leashing, or quarantine, but also vaccination against rabies. The dog tax was increased from $2 to $3 to help defray the cost of vaccinations where the owners did not employ their own veterinarians for the purpose. In the House committee report on this legislation, the dog population of the District was estimated at more than 50,000. During the calendar year 1944 there had been three deaths from hydrophobia. From Nov. 3, 1944 to Feb. 3, 1945, 36 rabid dogs were reported and 27 persons were bitten by rabid animals. The old law had restricted the Commissioners to proclamations requiring muzzling.

In Public 43 the powers of the Superintendent of Weights, Measures, and Markets were greatly strengthened, and in Public 25 the weight of commodities sold by the ton was reduced from the long ton of 2,240 pounds to the short ton of 2,000 pounds, to correspond with the practice at the coal mines. Congressional tags for cars, authorized in 1931, were limited to the Congress in which such tags were issued (Public 115), the sale of small rockfish (striped bass) was prohibited (Public 234), and some other legislation of a minor character was passed.

PART THREE

GOVERNMENTAL FUNCTIONS

DIVISION VII

PUBLIC FINANCE AND TAXATION

NATIONAL FINANCE AND THE PUBLIC DEBT

By William J. Carson
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SUMMARY—TRANSITION FROM WAR TO PEACE

National finance in 1945 reflected the requirements of the country in the closing days of its maximum war effort; its needs during the period of transition from war to peace; its problems of the war's aftermath at home and abroad; and finally the tasks which began to emerge by reason of the position in which the United States found itself as a major world power at the war's end. In addition, the composition and magnitude of the Federal budget in the post-war years became clearer.

Following victory over Germany in the spring of 1945 the war program was curtailed, and after victory over Japan in August further retrenchments in outlays were made. For fiscal 1946 as a whole, July 1, 1945-June 30, 1946, Federal expenditures were estimated by President Truman in his budget message to Congress in January 1946 to have declined $67,394,000,000 as compared with a total of $100,405,000,000 in fiscal 1945, the last full year of the global war.

Net receipts from taxation in fiscal 1946 are estimated to be $38,609,000,000, about 57 per cent of total expenditures. In fiscal 1945, net receipts totaled $46,457,000,000, about 46 per cent of expenditures. At the end of June 1945 the Federal debt totaled $258,682,000,000; at the end of January 1946, it was stated to be $279,444,616,125. In fiscal 1945 the public debt increased $57,679,000,000; in fiscal 1946 expenditures will exceed receipts by $28,785,000,000, but because of a reduction in the Treasury cash balance of $12,785,000,000 the debt is expected to increase only $16,318,000,000.

Table I summarizes the receipts and expenditures and the deficit in fiscal 1945, and the estimated receipts and expenditures and deficit in fiscal 1946.

FEDERAL EXPENDITURES

Total expenditures (general and special accounts) of $67,400,000,000 estimated for fiscal 1946 are approximately $33,000,000,000 smaller than in fiscal 1945, when the maximum outlay for any year of the war was reached. The principal purposes for which the expenditures of $67,400,000,000 in fiscal 1946 will be required were reported by the President in his budget message as follows:

(in millions)

	Fiscal 1946
Defense, war, and war liquidation...	$49,000
Aftermath of war: Veterans, interest, refunds....................	10,813
International finance (incl. proposed legislation)......................	2,614
Other activities....................	4,967
Total......................	$67,394

VII. PUBLIC FINANCE AND TAXATION

TABLE I

GENERAL BUDGET SUMMARY—COMPARATIVE STATEMENT OF RECEIPTS AND EXPENDITURES

General and Special Accounts

Description	Estimated, Fiscal 1946	Actual, Fiscal 1945
Receipts		
Direct taxes on individuals	$15,844,800,000	$19,788,893,624.36
Direct taxes on corporations	12,393,600,000	16,399,031,961.50[2]
Excise taxes	6,302,490,000	5,934,575,068.46
Employment taxes	1,581,300,000	1,792,700,136.62
Customs	413,200,000	354,775,541.50
Miscellaneous receipts	3,171,167,952	3,469,548,007.12
Total receipts	$39,706,557,952	$47,739,524,339.56
Deduct net appropriation to Federal old-age and survivors insurance trust fund	1,097,730,000	1,282,969,759.85
Net receipts (based on existing and proposed legislation)	$38,608,827,952	$46,456,554,579.71
Expenditures:		
National defense (tentative estimate for 1947) (see also Government corporations below)	$48,800,000,000[3]	$90,029,145,512.84
Interest on the public debt	4,750,000,000	3,616,686,048.31
Refunds	2,715,618,000[4]	1,714,880,287.89[4]
Veterans' pensions and benefits	3,346,815,000	2,043,872,734.13
International finance (based on existing and proposed legislation) (see also Government corporations below)	2,512,500,000	—
Aids to agriculture	466,238,938	602,351,648.75
Social security, relief and retirement:		
Social security program	538,480,000	476,365,111.49
Work relief	12,330,500	4,640,335.27
Retirement funds	606,567,600	505,579,500.00
General public works program:		
Highways and airports	145,486,000	41,698,418.03
Rivers and harbor	79,620,000	55,789,374.47
Flood control and reclamation (including power)	308,388,800	161,518,328.69
Veterans	55,000,000	15,799,142.62
Housing	100,000,000	—
Other general public works	52,545,900	15,779,308.45
General government:		
Legislative branch	35,873,000	28,893,273.21
The Judiciary	14,485,600	13,006,336.70
Executive Office of the President	3,187,000	2,449,629.06
Civil departments and agencies	1,244,542,797	1,069,652,796.84
Postoffice Department (general fund)	—	486,898.79
District of Columbia (Federal contribution)	6,000,000	6,000,000.00
Expenditures from anticipated supplemental appropriations	1,350,000,000	—
Expenditures based on proposed legislation (excluding international finance)	250,000,000	—
Statutory public debt retirement	—	2,000.00
Total expenditures (based on existing and proposed legislation)	$67,393,679,135	$100,404,596,685.54
Excess of expenditures	$28,784,851,183	$53,948,042,105.83

Checking Accounts of Government Corporations and Credit Agencies with the Treasurer of the United States

Net expenditures from checking accounts (based on existing legislation):		
National defense	$200,000,000	$472,033,180.28
International finance	101,000,000	164,811.36[1]
Redemption of obligations in the market	230,000,000	1,552,733,547.88
Other activities	466,000,000[1]	846,218,782.69[1]
Net expenditures (based on existing legislation)	$65,000,000	$1,178,383,134.11

TABLE I (Continued)

Trust Accounts

Description	Estimated, Fiscal 1946	Actual, Fiscal 1945
Receipts (based on existing legislation):		
Unemployment trust fund:		
Deposits by states	$1,055,500,000	$1,256,002,876.17
Deposits by Railroad Retirement Board and other receipts	251,371,803	242,805,514.93
Transfers from general and special accounts	9,617,970	8,948,213.00
Federal old-age and survivors insurance trust fund:		
Net appropriation from general account receipts	1,097,730,000	1,282,969,759.85
Interest on investments	147,276,473	123,853,998.15
Veterans' life insurance funds:		
Premiums and other receipts	1,110,172,000	1,108,093,913.11
Transfers from general and special accounts	1,228,000,000	1,116,524,685.43
Federal employes' retirement funds:		
Deductions from employes' salaries and other receipts	330,795,062	360,474,278.59
Transfers from general and special accounts	247,316,800	196,762,500.00
Railroad retirement account:		
Interest on investments	19,874,000	15,240,493.19
Transfers from general and special accounts	359,250,800	308,817,000.00
Other trust accounts:		
Transfers from general and special accounts	6,000,000	3,105,953.25
Miscellaneous trust receipts	821,737,152	1,041,223,631.22
Total receipts (based on existing legislation)	$6,684,642,060	$7,058,610,910.39
Expenditures (based on existing legislation):		
Unemployment trust fund:		
Investments in United States securities	$ 311,489,773	$ 1,437,173,400.00
Withdrawals by states and other expenditures	1,005,000,000	71,277,332.93
Federal old-age and survivors insurance trust fund:		
Investments in United States securities	951,697,753	1,137,410,920.00
Benefit payments	323,000,000	239,833,904.85
Veterans' life insurance funds:		
Investments in United States securities	2,043,832,000	2,046,526,289.50
Insurance losses and refunds	294,340,000	152,671,355.91
Federal employes' retirement funds:		
Investments in United States securities	394,726,700	399,448,000.00
Annuities and refunds	186,151,399	150,628,135.30
Railroad retirement account:		
Investments in United States securities	218,000,000	182,000,000.00
Benefit payments	161,000,000	141,444,643.89
Other trust accounts:		
Investments in United States securities	13,799,000	2,390,000.00[1]
Miscellaneous trust expenditures	733,604,953	427,765,346.12
Special deposit accounts (net)	300,000,000	1,301,979,198.70[1]
Total investments in United States securities	$3,933,545,226	$5,200,168,609.50
Total benefit payments, annuities and other expenditures	3,003,096,352	118,358,479.70[1]
Total expenditures (based on existing legislation)	$6,936,641,578	$5,081,810,129.80
Excess of expenditures over receipts	$251,999,518	—
Excess of receipts over expenditures	—	$1,976,800,780.59

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[1] Excess of credits, deduct.

[2] Includes refundable excess-profits taxes estimated at $761,100,000.

[3] Includes estimated expenditures from anticipated supplemental appropriations.

[4] Includes transfers to public debt accounts for excess-profits tax refund bonds issued.

Included in the figure of $49,000,000,000 for defense, war, and war liquidation are outlays by the War and Navy Departments and other agencies such as the United States Maritime Commission, War Shipping Administration, Office of Price Administration; payments to the United

Nations Relief and Rehabilitation Administration; mustering-out pay to men in the armed forces on demobilization; contract settlement and surplus property disposal; and authorizations for war and national defense.

The aftermath of war expenditures include outlays for veterans' pensions and benefits which have become one of the largest single categories in the budget; interest payments on the public debt; refunds to individuals and corporations for excess tax payments; loss and excess profits credit; carry-backs; recomputed amortization on war plants; and special relief from excess profits taxes.

Outlays for international financial programs include the credits extended and contemplated to allied countries following termination of lend-lease; loans by the Import-Export Bank to facilitate the foreign trade of the United States; credits such as those that will become operative when the loan of $3,750,000,000 to Great Britain is made; and the funds that are called for under the Bretton Woods Agreements.

Included in the expenditure of $5,000.000,000 for other activities are the outlays for agricultural programs, including conservation and use of land, rural electrification, Farm Security Administration, Farm Credit Administration; for resource development; for social security, relief, and retirement; public works; aids, subsidies, and regulatory controls for transportation; and expenses of general government.

REVENUE AND TAXATION

Net receipts (general and special accounts) during fiscal 1945 totaled $46,457,000,000, the maximum figure reached during the war. In fiscal 1946, receipts are estimated to decline to $38.609,000,000. The figure for fiscal 1947 is estimated to decline still further to $31,513,000,000. Direct taxes on individuals are estimated at $15,845,000,000 in fiscal 1946, direct taxes on corporations at $12,394,000,000, and excise taxes at $6,302,000,000. Lower taxes in fiscal 1946 are in large degree the result of the Revenue Act of 1945 which was a major tax reduction measure, the total tax load being decreased by more than one-sixth. The details of receipts and revenues are given in Table I.

GROWTH AND DISTRIBUTION OF THE PUBLIC DEBT

At the close of the fiscal year ended June 30, 1945, the Federal public debt was $258,682,000,000. By June 30, 1946, the end of fiscal 1946, it is estimated to total $275,000,000,000. Table II shows the effect of financing operations on the public debt in fiscal 1945 and estimates of the effect of operations in fiscal 1946.

TABLE II

FISCAL OPERATIONS AND CHANGES IN THE PUBLIC DEBT

Description	Estimated, Fiscal 1946	Actual, Fiscal 1945
Public debt at beginning of year	$258,682,187,410	$201,003,387,221.13
Increase in public debt during year:		
General and special accounts, excess of expenditures over receipts	$28,784,851,183	$53,948,042,105.83
Checking accounts of Government corporations and credit agencies, net expenditures	65,000,000	1,178,383,134.11
Trust accounts, excess of expenditures over receipts	251,999,518	−1,976,800,780.59
Statutory public debt retirement	—	−2,000.00
Adjustment for change in Treasury cash balance	−12,784,038,111	+4,529,177,729.45
Increase in public debt during year	$ 16,317,812,590	$ 57,678,800,188.80
Public debt at end of year	$275,000,000,000	$258,682,187,409.93

Analysis of the composition of the Federal debt by amount and kind of issues outstanding June 30, 1944 and June 30, 1945 is given in Table III.

Distribution of the Federal debt among different investors on June 30, 1944 and June 30, 1945 is shown in Table IV.

Examination of the figures in Table IV shows that the increase in the pub-

TABLE III

UNITED STATES GOVERNMENT DEBT—AMOUNT AND KIND OF ISSUES

Issues	Outstanding Public Debt	
	June 30, 1945	June 30, 1944
Interest-bearing debt:		
Public Issues:		
Pre-war bonds (World War I), including postal savings bonds	$ 195,824,740.00	$ 195,926,860.00
Treasury bonds	106,448,403,950.00	79,244,104,350.00
United States savings bonds	45,585,588,646.30	34,606,141,184.59
Depositary bonds	504,534,000.00	474,321,750.00
Adjusted service bonds	—	217,283,050.00
Treasury notes	23,497,339,700.00	17,404,896,800.00
Treasury notes (tax series)	68,237,825.00	109,021,750.00
Treasury notes (savings series)	10,067,516,000.00	9,447,737,600.00
Certificates of indebtedness	34,135,861,000.00	28,822,416,000.00
Treasury bills	17,041,258,000.00	14,734,104,000.00
Total, public issues	$237,544,563,861.30	$185,255,953,344.59
Special issues:		
Government life insurance fund (adjusted service bonds)	$ 500,157,956.40	$ 500,157,956.40
Federal old-age and survivors insurance trust fund (notes)	3,659,600,000.00	4,385,500,000.00
Railroad retirement account (notes)	500,500,000.00	318,500,000.00
Civil service retirement fund (notes)	1,848,270,000.00	1,450,913,000.00
Foreign Service retirement fund (notes)	7,836,000.00	7,012,000.00
Canal Zone retirement fund (notes)	10,298,000.00	9,187,000.00
Alaska Railroad retirement fund (notes)	1,911,000.00	1,755,000.00
Postal Savings System (notes)	461,000,000.00	264,000,000.00
Canal Zone Postal Savings System (notes)	3,500,000.00	3,500,000.00
Government life insurance fund (notes)	2,400,000.00	1,900,000.00
National service life insurance fund (notes)	3,187,125,000.00	1,213,425,000.00
Federal Deposit Insurance Corporation (notes)	97,000,000.00	98,000,000.00
Federal Savings and Loan Insurance Corporation (notes)	36,962,000.00	26,662,000.00
Adjusted-service certificate fund (certificates)	14,500,000.90	16,890,000.00
Government life insurance fund (certificates)	85,992,000.00	—
Unemployment trust fund (certificates)	6,747,000,000.00	5,610,000,000.00
Federal old-age and survivors insurance trust fund (certificates)	1,648,000,000.00	380,000,000.00
Total special issues	$18,812,051,956.40	$14,287,401,956.40
Total, interest-bearing debt	$256,356,615,817.70	$199,543,355,300.99
Non-interest-bearing debt:		
Public issues:		
Matured debt on which interest has ceased (payable on presentation)	$ 268,667,135.26	$ 200,851,160.26
Debt bearing no interest (payable on presentation)	2,056,904,456.97	1,250,180,759.88
Total, non-interest-bearing debt	$2,325,571,592.23	$1,460,031,920.14
Total, public debt on basis of daily Treasury statement	$258,682,187,409.93	$201,003,387,221.13

TABLE IV

DISTRIBUTION OF UNITED STATES GOVERNMENT SECURITIES DIRECT AND FULLY GUARANTEED JUNE 30, 1944 AND JUNE 30, 1945

(In millions of dollars)

	June 30, 1944	June 30, 1945	Change	Percentage Distribution June 30, 1945
Total interest bearing securities	201,059	256,766	+55,707	100.00
Held by United States Government agencies and trust funds				
Special issues	14,287	18,812	+4,525	7.33
Public issues	4,810	6,128	+1,318	2.38
Held by Federal Reserve banks	14,901	21,792	+6,891	8.52
Privately held				
Total	167,061	210,034	+42,973	81.77
Commercial banks	68,431	84,069	+15,638	32.80
Mutual Savings banks	7,306	9,588	+2,282	3.63
Insurance companies	17,300	22,700	+5,400	8.84
Other investors				
Marketable issues	30,700	39,500	+8,800	15.40
Non-marketable issues	43,300	54,200	+10,900	21.10

lic debt between June 1944 and June 1945 was distributed among all types of investors. The increases in the holdings of the Federal reserve banks, however, were relatively larger than the increases in the holdings of other principal investors.

Analysis of the distribution of the Federal debt among different investors shows that the commercial banking system—the commercial banks and the Federal reserve banks together—hold over 40 per cent of the total; that 36 per cent is held by individuals, companies, and other non-institutional investors; and that insurance companies hold approximately 9 per cent.

WAR LOAN DRIVES

The two final war loan drives were held in calendar 1945—the Seventh War Loan in the spring, April 9-June 30, and the Victory Loan in the autumn, ended Dec. 31, 1945. Total sales of $26,300,000,000 were made during the Seventh Loan, and subscriptions of over $20,000,000,000 were reported during the Victory Loan. The Victory Loan marked the end of war borrowing and the beginning of the transition to post-war debt management.

USE OF BANK CREDIT IN WAR FINANCE

In an analysis of war financing and of the extent to which bank credit has been used, the National City Bank Letter January 1946 comments as follows:

"Although the primary purpose of government financing has been to raise the funds required, another important consideration has been to absorb as much as possible of the excess of inflationary money, created by government expenditures and not offset by production of civilian goods and services.

"During the Victory Loan, commercial bank absorption of government securities was apparently in the neighborhood of $6.3 billion, which was less than in most previous drives. Loans against securities, totaling around $3.1 billion, on the other hand, were apparently larger. The aggregate of commercial bank credit, including government securities purchased by the Federal Reserve Banks, was apparently almost as much in the larger drives, and represented a larger proportion of the net increase in government debt during the drive period.

"Whereas in the Victory Loan the percentage of credit involved was apparently larger than in earlier drives, the figures for the entire year 1945 indicate a somewhat lower percentage of government borrowing financed by the commercial banking system than in earlier years. This is shown by the following table (Table V).

"In the entire four years 1942 through 1945, approximately 45 per cent of the funds borrowed by the Government was provided by banks. At the end of 1945 commercial bank holdings of the national debt are estimated at $88 billion, or 32 per cent of the $279 billion total, while Federal Reserve Bank holdings were $24 billion, or 9 per cent."

MANAGEMENT OF THE PUBLIC DEBT

Noting the magnitude of the national debt of $275,000,000,000 and that $100,000,000,000 is held by the commercial banks and the Federal Reserve Banks, President Truman in his budget message to Congress discussed the tasks of debt management as follows:

"Heavy purchases by the banks were necessary to provide adequate funds to finance war expenditures. A considerable portion of these obligations are short-term in character and hence will require refinancing in the coming months and years.

"Since they have been purchased out of newly created bank funds, continuance of the present low rates of interest is entirely appropriate. To do otherwise would merely increase bank profits at the expense of the taxpayer.

"The 275-billion dollar debt poses a problem that requires careful consideration in the determination of financial and economic policies. We have learned that the problem, serious as it is, can be managed. Its management will require determined action to keep our Federal budget in order and to relate our fiscal policies to the requirements of an expanding economy.

"The more successful we are in achieving full production and full employment the easier it will be to manage the debt and pay for the debt service. Large though the debt is, it is within our economic capacity. The interest charges on it amount to but a small proportion of our national income."

GOVERNMENT BOND PRICES AND YIELD

After remaining fairly stable in 1943 and 1944, rates on medium- and long-term obligations of the Federal Government declined sharply in 1945. Rates, however, at which short term bills were issued continued at the same level as in 1944, and those for 9-to-12 month certificates of indebtedness were slightly higher than in

TABLE V

INCREASE IN TOTAL GOVERNMENT DEBT, AND PORTION TAKEN BY BANKS DURING CALENDAR YEARS 1942-45

(In billions of dollars)

	1942	1943	1944	Est. 1945	Total 1942–45
Interest-bearing debt direct and guaranteed, Net increase	47.8	57.1	61.6	46.5	213.0
Taken by banks:					
Commercial banks	19.7	18.8	17.8	10.7	67.0
Federal Reserve Banks	3.9	5.3	7.3	5.2	21.7
Total	23.6	24.1	25.1	15.9	88.7
Financed by banks:					
Loans against securities	.2	.8	2.2	3.0	6.2
	23.8	24.9	27.3	18.9	94.9
Per cent taken or financed by banks	50%	44%	44%	41%	45%

TABLE VI

AVERAGE YIELDS ON SHORT-TERM OBLIGATIONS OF THE UNITED STATES GOVERNMENT

(Per cent per annum)

	1944		1945	
	New Issues of Treasury Bills[1]	3-5 Year Taxable Notes	New Issues of Treasury Bills[1]	3–5 Year Taxable Notes
January	.374	1.30	.375	1.31
February	.375	1.32	.375	1.22
March	.375	1.36	.375	1.18
April	.375	1.36	.375	1.14
May	.375	1.35	.375	1.16
June	.375	1.34	.375	1.16
July	.375	1.31	.375	1.16
August	.375	1.30	.375	1.17
September	.375	1.31	.375	1.19
October	.375	1.35	.375	1.17
November	.375	1.34	.375	1.14
December	.375	1.35	.375	1.15
Average	.375	1.33	.375	1.18

[1] Rate on new issues of 3-month bills offered within period.

1944. Yields on 3-5 year Treasury notes declined from 1.31 per cent in January 1945 to 1.15 per cent in December, averaging 1.18 per cent for the year as compared with 1.33 per cent in 1944. Yields on long term taxable bonds, due in 15 years and over, declined from 2.44 per cent in January to 2.33 in December, averaging 2.37 per cent for the year as compared with 2.48 per cent in 1944.

TABLE VII

AVERAGE YIELDS ON LONG-TERM UNITED STATES GOVERNMENT BONDS[1]

(Per cent per annum)

	1944	1945
January	2.49	2.44
February	2.49	2.38
March	2.48	2.40
April	2.48	2.39
May	2.49	2.39
June	2.49	2.35
July	2.49	2.34
August	2.48	2.36
September	2.47	2.37
October	2.48	2.35
November	2.48	2.33
December	2.48	2.33
Average	2.48	2.37

[1] Average of taxable bonds due in 15 years and ov..

TABLE VIII

UNITED STATES GOVERNMENT BOND PRICES[1]

(Monthly average of daily figures)

	1944	1945
January	100.18	100.97
February	100.14	101.81
March	100.26	101.56
April	100.26	101.68
May	100.19	101.74
June	100.16	102.38
July	100.19	102.46
August	100.35	102.22
September	100.40	102.02
October	100.29	102.38
November	100.26	102.60
December	100.34	102.68
Average	100.25	102.04

[1] Average of taxable bonds due or callable in 15 years and over.

Tables VI, VII and VIII show in detail the course of the yields and prices by months in 1944 and 1945.

"INFLATIONARY" EXPANSION PROBLEM

At the beginning of 1945 President Roosevelt emphasized the importance of making plans to transform our all-out war economy into a full employment peacetime economy and urged fiscal programs to stimulate full employment in the post-war period. Attention, accordingly, was devoted by many to this problem and to steps to encourage reconversion and peacetime business expansion.

One of the fiscal actions taken in response to this interest following the victory over Japan was the Revenue Act of 1945. This was a major tax reduction measure that decreased the total tax load by more than one-sixth. Other actions included the removal of the wartime economic controls as circumstances permitted.

By the end of the year, however, sole emphasis was not on fiscal measures to stimulate business expansion; instead, increasing attention was being focused on the problem of preventing or controlling an "inflationary" boom. The fiscal steps proposed to exercise a check on an "inflationary" expansion were continuance of taxes as provided in the Revenue Act of 1945 with no further reductions in 1946; reductions of Federal expenditures still more than provided in the budgets for fiscal 1946 and 1947; management of the public debt in such a way that additional money through bank credit expansion would not be created; and finally to bring about a balance in the Federal budget.

In his budget message in January 1946, President Truman called attention to the inflationary pressures, recommended against further tax reduction, and urged that a move be made toward debt retirement and a balanced budget. He said ". . . inflationary pressures still appear dangerously powerful, and ill advised tax reduction would operate to strengthen them still further. . . .

"It is good to move toward a balanced budget and a start on the retirement of the debt at a time when demand for goods is strong and the business outlook is good. These conditions prevail today. Business is good, and there are still powerful forces working in the direction of inflation. This is not the time for tax reduction."

Discussing the same problem and urging a balanced budget as a major step against inflation, Chairman Marriner S. Eccles of the Federal Reserve Board, in a statement on Jan. 17, 1946 announcing the Board's decision to increase margin requirements to 100 per cent, said: ". . . the primary source of the inflation danger which overhangs the domestic economy on all fronts is the vast accumulation of currency and bank deposits at the disposal of the public as a result of the fact that far too much of the cost of the war was financed through the creation of commercial bank credit and not enough was financed out of taxes and the savings of the public . . .

"In addition, it is important to point out that so long as the public debt continues to be monetized through the purchase of Government securities by the banking system, the supply of money will continue to increase, thus tending further to reduce the interest rate on savings and investment funds. . . .

"It is, therefore, imperative that the process of further monetizing of the public debt through the banking system be ended . . . The process needs to be stopped not only by bringing about a balanced budget, but also through measures to check further unnecessary expansion of commercial bank holdings of Government securities."

VII. PUBLIC FINANCE AND TAXATION

STATE FINANCES AND TAXATION

By George H. Watson
Tax Consultant, Council of State Governments

REVENUES

State tax revenues for the fiscal year ended June 30, 1945 set a new record, according to a preliminary report of the Bureau of the Census, reaching a total of $5,500,000,000 (Table I). This increase of 1.9 per cent over the $5,400,000,000 collections of 1944, was the smallest percentage increase in any war year, and indicates a possible turning point in revenue totals. This possibility is discounted, however, when totals are studied more carefully. Unemployment compensation taxes actually declined for the first time since their imposition in the middle 1930's, but tax collections exclusive of this special source increased from $4,100,000,000 to $4,300,000,000, or 4.1 per cent, compared to a 3.7 per cent increase from these sources in 1944. Further grounds for believing that total state taxes may yet go higher lie in the substantial increases in gasoline, motor vehicle, tobacco, and alcoholic beverage revenues which may be expected to follow the end of wartime shortages of these commodities, in fact, have already begun.

The character of changes in revenues from individual taxes presents a different pattern from the previous war years. The outstanding difference lies in collections of corporation income taxes, which increased only 3.1 per cent in 1945, compared to 31.2

TABLE I

STATE TAX COLLECTIONS IN FISCAL YEARS ENDED ON OR BEFORE JUNE 30, 1945 BY TYPE OF TAX WITH CORRESPONDING COLLECTIONS IN 1944 *

	Amount Collected (in millions)		Per Cent Change 1944 to 1945	Per Cent Distribution of Collection by Type of Tax, 1945
	1945	1944		
Total collections:				
Including unemployment compensation	$5,509	$5,407	1.9	100.0
Excluding unemployment compensation	4,255	4,087	4.1	77.2
Sales and gross receipts	2,272	2,160	5.2	41.2
General sales, use, or gross receipts	775	721	7.5	14.1
Motor vehicle fuels	701	690	1.4	12.7
Alcoholic beverages	308	267	15.4	5.6
Tobacco products	145	160	−9.4	2.6
Insurance companies	128	125	2.4	2.3
Public utilities	127	125	1.6	2.3
Other	87	73	19.2	1.6
License and privilege	694	704	−1.4	12.6
Motor vehicles and operators	406	412	−1.5	7.4
Corporations in general	113	114	−.9	2.1
Alcoholic beverages	57	55	3.6	1.0
Hunting and fishing	25	23	8.7	.5
Other	94	99	−5.1	1.7
Individual income	350	316	10.8	6.4
Corporation income	460	446	3.1	8.3
Property	229	247	−7.3	4.2
Death and gift	132	114	15.8	2.4
Severance	83	71	16.9	1.5
Other, except unemployment compensation	36	31	16.1	.7
Unemployment compensation	1,254	1,319	4.9	22.8

* *State Finances: 1945*, Bureau of the Census, Vol. II, No. 1, Preliminary.

TABLE II

STATE TAX COLLECTIONS, BY MAJOR SOURCE: 1937-1945 *

(in millions)

Tax Source	1945 (Prelim.)	1944	1943	1942	1941	1940	1939	1938	1937
Total tax collections:									
Including unemployment compensation	$5,509	$5,407	$5,113	$4,993	$4,507	$4,157	$3,884	$3,834	$3,360
Excluding unemployment compensation	4,255	4,087	3,941	3,917	3,606	3,313	3,085	3,132	3,013
General sales, use, or gross receipts	775	721	671	633	575	499	440	447	434
Motor vehicle fuel sales	701	690	777	942	913	839	801	777	722
Alcoholic beverage sales	308	267	280	256	216	193	174	175	177
Tobacco product sales	145	160	141	131	106	97	60	55	54
Motor vehicle and operator licenses	406	412	412	449	434	387	364	359	349
Alcoholic beverage licenses	57	55	55	56	56	62	54	52	44
Individual income	350	316	293	249	225	206	197	218	199
Corporation income	460	446	340	274	197	155	134	165	157
Property	229	247	258	271	268	260	259	244	292
Death and gift	132	114	109	112	118	113	133	142	116
Severance	83	71	75	62	53	53	47	58	49
Other, except unemployment compensation[1]	610	590	530	482	445	449	422	440	420
Unemployment compensation tax	1,254	1,319	1,172	1,076	901	844	799	702	347

[1] Includes taxes from the following sources: insurance gross premiums, public utility gross receipts, pari-mutuels, admission and amusement sales, soft-drink sales; licenses for corporations in general, alcoholic beverages, hunting and fishing, occupations, chain stores, amusements, and race tracks; poll, documentary and stock transfers, and miscellaneous taxes.

* From *State Finances: 1945*, Bureau of the Census, Vol. II, No. 1, Preliminary.

per cent in 1944. The first place in increases among major taxes is taken by alcoholic beverages, with a gain of 15.4 per cent in 1945, after a decline of 4.6 per cent in 1944 caused by preemption of distilling facilities for industrial alcohol, and exhaustion of liquor stocks. No other important tax shows an increase of more than 10 per cent, except individual income taxes, which rose 10.8 per cent, substantially more than the 7.8 per cent increase of 1944. Death and gift levies, and severance taxes rose 15.8 and 16.9 per cent, respectively, but neither provides substantial revenues on a nationwide scale. Most major taxes showed increases of 1 to 8 per cent, while tobacco tax and motor vehicle license yields actually declined. Property taxes continued their long-range downward trend with a drop of 7.3 per cent, primarily reflecting the continued abandonment of this source of revenue to local governments.

The largest increase for any individual state occurred in New York, where the gain of 13.5 per cent resulted principally from the heavy yield of the corporation income tax, individual income taxes, and unemployment compensation taxes. Other states showing increases of more than 5 per cent, according to available data, were Mississippi, New Mexico, Kentucky, South Dakota, Wyoming, Missouri, and Louisiana. About one-third of the states had declining revenues in 1945, the same number as the preceding year, with the largest decreases in Pennsylvania, Arizona, and Nevada. Highest per capita collections were found in Washington ($81), California ($72), and New York ($67); while four states—Georgia, Kentucky, Nebraska, and Tennessee—tied for lowest with $27 per capita. The national average was $44.

Monthly collection data for excises show substantial increases for all except wine taxes during the calendar year 1945. Especially significant are

TABLE III

STATE EXPENDITURES *

(in millions)

Character and Major Function	1944	1943	Per Cent Change 1943–1944	Per Cent Distribution 1944
Total general expenditure	$5,959	$5,920	.7	100.0
Provision for debt retirement	225	382	−41.1	3.8
General expenditure less provision for debt retirement	5,734	5,538	3.5	96.2
Operation	2,104	1,967	7.0	35.3
General control	171	170	.6	2.9
Public safety	131	134	−2.2	2.2
Highways	266	244	9.0	4.5
Natural resources	132	121	9.1	2.2
Health	70	57	22.8	1.2
Hospitals and institutions for the handicapped	264	242	9.1	4.4
Public welfare	578	553	4.5	9.7
Correction	78	74	5.4	1.3
Schools	356	307	16.0	6.0
Libraries	3	2	50.0	.1
Recreation	8	8	—	.1
Miscellaneous	48	54	−11.1	.8
Capital outlay	324	477	−32.1	5.4
Highways	281	416	−32.5	4.7
Schools	15	19	−21.1	.3
Other	29	42	−31.0	.5
Aid paid to local governments	1,795	1,744	2.9	30.1
Highways	306	332	−7.8	5.1
Public welfare	367	362	1.4	6.2
Schools	806	785	2.7	13.5
Other	317	265	19.6	5.3
Interest[1]	93	101	−7.9	1.6
Contributions to trust funds and enterprises	1,417	1,250	13.4	23.8

[1] Includes direct payments and payments through sinking funds for general debt only. For remainder of debt service, see provision for debt retirement above.

* From *State Finances: 1944*, Vol. III, Bureau of the Census.

exceptional increases in gasoline tax collections, starting in September when the effect of the war's end in August became apparent, and the change from declines to sharp increases in cigarette tax collections, starting in July with the release of more cigarettes and the imposition of new taxes in the new fiscal year. There is every reason to expect a continuation of these increases for some time, although general sales tax collections will probably prove more immediately sensitive to decreased incomes than the excises on specific commodities.

The trend of collections over a nine year period is shown in Table II. A steady increase is evident in general sales taxes, individual and corporation income taxes, and unemployment compensation taxes, as national income has risen through these years, but the drop in unemployment compensation taxes, with the falling off of industrial payrolls, probably foretells declines in the other taxes directly linked to income. Special excise and motor vehicle license taxes, on the other hand, have been held down by wartime shortages, but already show the trend which will yield sharp increases in the immediate post-war years. During the nine-year period, state tax collections as a whole rose 64 per cent, while national income during the same period more than doubled.

EXPENDITURES

Total state expenditures in 1944 changed less than one per cent from 1943, increasing from $5,920,000,000 to $5,959,000,000. This over-all stability conceals several significant changes, which may be seen in Table III. The most important single change was the increase of 13.4 per cent in contributions to trust funds, nearly all (more than 90 per cent) of which are payments into unemployment compensation funds of earmarked revenues from unemployment compensation taxes. This change represented an absolute increase of $167,000,000.

While provision for debt retirement slumped $157,000,000, or 41 per cent, from $382,000,000 to $225,000,000, the cost of operation of state governments rose almost the same amount, $147,000,000. This increase represented only 7 per cent, however, raising the $1,967,000,000 expenditures of 1943 to $2,104,000,000 in 1944. Expenditures for various functions increased for the most part by amounts of less than 10 per cent, clustering around the 7 per cent average increase. The most significant single increase among operating functions was the $49,000,000 increase in expenditures for schools; although only 16 per cent, this was much more important than the 23 per cent increase in expenditures for health and 50 per cent for libraries, because of the much smaller absolute amounts.

Capital outlay continued to fall off sharply, building up the backlog of deferred maintenance and new construction resulting from wartime restrictions on building. The decline was $153,000,000, or 32 per cent, from $477,000,000 to $324,000,000. Local aid remained at substantially the same level as preceding years.

FINANCIAL POSITION OF THE STATES

The excellent financial position of the states in 1943 was improved in 1944 and again in 1945, with continued reduction in debt and accumulation of surpluses, although the rate of debt reduction declined in 1945. The 1945 legislative sessions showed more increases than reductions in taxes, indicating increased apprehension concerning the stability of state finances in the post-war period when expenditures must expand, especially in the construction and maintenance of highways and buildings, which were postponed during the war.

State debt, shown in Table IV, reached in 1944 the lowest point since 1931, with a 5 per cent decrease in gross debt and a 7.2 per cent decline in net long term debt. Although the detailed table for 1945 is not available, it is clear that the decline has continued. At the end of 1944 fiscal years, the states had balances in their general, highway, and post-war funds of over $1,640,000,000, an increase of 50 per cent over 1943, according to the Census Bureau, and estimates for 1945 are still higher. In addition, it is estimated that state unemployment compensation trust funds held for the states by the United States Treasury amounted to almost $7,000,000,000 by June 30, 1945. States and their subdivisions purchased approximately $6,657,000,000 in government securities during the war, and still held close to $5,000,000,000 on June 30, 1945.

On the basis of excise collections during the first half of the fiscal year ending on June 30, 1946, it appears probable that total state tax collections will exceed even those of 1945. This increase, which will occur in spite of almost certain declines in income and unemployment compensation taxes, will probably not exceed the relative inflation during the year, so that the real income of the states will not increase further, if indeed it has increased at all since 1942. State expenses are rising rapidly in terms of unit costs, and, especially in the case of salaries and wages, can not be expected to decline for some time. When the amount of deferred maintenance and the increased unit cost are considered, the reserves of the states actually appear scarcely adequate to meet their post-war needs, and realization of this fact accounts

TABLE IV

GROSS DEBT OF INDIVIDUAL STATES, 1943-1944

(amounts in millions)

State	Gross Debt		Change: 1943–1944	
	June 30, 1944*	June 30, 1943**	Amount	Per Cent
Total	2,796.3	2,946.0	150.0	−5.1
New York	616.4	628.9[1]	12.4	−2.0
California	242.8	203.1	39.7	19.5
Pennsylvania	189.9	198.6	8.7	−4.4
Louisiana	168.5	177.6	9.1	−5.1
Arkansas	144.1	149.4	5.3	−3.6
Illinois	125.1	138.2	13.2	−9.5
North Carolina	119.1	128.5	8.6	−6.7
New Jersey	96.2	102.7	6.6	−6.4
South Carolina	86.1	87.1	1.0	−1.1
Tennessee	83.5	98.0	14.5	−14.8
Minnesota	82.4	98.5	16.1	−16.3
Missouri	80.9	87.7	6.8	−7.8
Massachusetts	79.8	101.6	21.8	−21.5
West Virginia	75.1	76.2[1]	1.0	−1.4
Mississippi	74.3	78.2	3.9	−5.0
Alabama	71.8	72.2	0.4	−0.6
Maryland	43.3	51.8	8.5	−16.4
Oklahoma	29.9	32.4	2.4	−7.5
South Dakota	27.7	28.9	1.2	−4.1
Rhode Island	27.6	28.4	0.8	−2.7
Michigan	25.8	34.6	8.9	−25.6
Connecticut	25.2	26.5	1.3	−5.0
Virginia	24.9	27.0	2.1	−7.7
New Mexico	24.8	26.7	1.9	−7.0
Oregon	23.7	27.4	3.7	−13.6
North Dakota	22.4	23.5	1.1	−4.7
Maine	21.2	24.5	3.4	−13.7
Colorado	20.0	22.1	2.1	−9.3
Georgia	18.6	22.2	3.5	−16.0
New Hampshire	16.1	17.5	1.4	−8.0
Texas	14.5	18.5	4.0	−21.5
Washington	14.5	15.9	1.4	−8.8
Kansas	12.9	14.2	1.3	−9.5
Montana	12.3	12.9	0.6	−4.9
Ohio	12.1	12.9	0.8	−6.2
Kentucky	7.5	8.2	0.7	−9.1
Indiana	7.0	7.5	0.4	−5.9
Delaware	4.7	5.1	0.3	−6.8
Vermont	4.4	5.5	1.1	−20.8
Wisconsin	4.2	4.3	0.1	−2.2
Wyoming	3.5	3.5	0.1	−1.4
Arizona	3.4	3.6	0.1	−3.5
Utah	2.2	2.3	0.2	−6.7
Iowa	1.6	1.5	0.1	8.3
Idaho	1.5	2.0	0.5	−26.4
Nebraska	1.1	1.3	0.2	−12.9
Florida	1.0	—[1]	—	—

[1] Revised 1943 figures not available.
* *State Finances*, 1944, Vol. II, No. 2.
** *State Finances*, 1943, Vol. III, p. 7.

for the number of rate increases and surveys of state tax systems in 1945.

LEGISLATION

The year 1945 was a "legislative year" for the states, that is, an odd numbered year, in which 44 state legislatures hold regular sessions, compared to only eight in even numbered years. It is no surprise, therefore, that 1945 was a prolific year for state tax legislation. Many states felt the need for additional revenues because of wartime declines in gasoline, motor vehicle license, alcoholic beverages, tobacco, and pari-mutuel revenues, while other states were concerned about surpluses arising from excessive collections of income taxes. The action of the United States Supreme Court in declaring the insurance business to be "commerce" resulted in the abolition of many discriminatory state insurance tax laws; while two states have introduced new methods of taxing interstate airlines as an indirect result of the decision in the *Northwest Airlines* case, discussed in this article in The American Year Book for 1944. Missouri has undertaken the difficult job of rewriting the state statutes to conform to the new Constitution adopted early in 1945, and substantial changes in taxation and tax administration will result.

Most legislation of major importance during the year was the result of a need for increased revenues by certain states. Idaho imposed a new cigarette tax, and three other states increased cigarette tax rates. Higher gasoline tax rates were levied by Idaho, Iowa, Kansas, and Oklahoma. New or additional alcoholic beverage taxes were enacted by Alabama, Arkansas, Florida, Indiana, Massachusetts, Michigan, North Carolina, Oklahoma, Utah, and Vermont. Alabama, Florida, Georgia, and North Carolina adopted new oil and gas production taxes. Seventeen states legislated further to confer special tax benefits on military service personnel, in addition to those granted by previous legislatures.

COURT DECISIONS

Several important constitutional questions were considered by the courts in their adjudication of tax cases during 1945. One of the most significant developments was the ruling by the United States Supreme Court and by several state courts that the Supreme Court decision in the *Southeastern Underwriters* case, discussed in this article in 1944, does not constitute an insurmountable barrier to discriminatory or even retaliatory state taxation of "foreign" insurance companies—foreign in the sense of being chartered by another state. In *Lincoln National Life Insurance Co. v. Read,* decided on June 11, 1945, the Supreme Court affirmed a decision of the Oklahoma Supreme Court sustaining a 4 per cent license tax on foreign insurance companies only, levied as a condition precedent to doing business in the state. The court ruled that "a state may discriminate against foreign corporations by admitting them under more onerous conditions than it exacts from domestic companies." Similar opinions were handed down by the state courts of Michigan and Kansas.

Other constitutional issues considered by the United States Supreme Court were: the classification of interstate corporations as "unitary enterprises," upheld by dismissal of appeals in *Ford Motor Co. v. Commonwealth* and *Quaker Oats Co. v. Commonwealth,* involving the assessment of the tax base for the Pennsylvania franchise tax; the "unbroken package" doctrine, held applicable to imports from the Philippines in *Hooven and Allison Co. v. Evatt,* denying Ohio the power to levy a property tax on such imports in the hands of a corporation purchasing them at a port of entry; and the concept of "doing business" in a state in *International Shoe Company v. State of Washington,* in which the service of process on a foreign corporation was upheld although the sole activity in the state was maintenance of resident salesmen who took orders to be accepted and filled outside the state.

Of interest also are two state decisions invalidating oleomargarine taxes, that of South Dakota because levied for a purpose other than revenue, and that of Nebraska because of an exemption of margarine made from domestic fats, which was held discriminatory.

GENERAL SALES, GROSS RECEIPTS, AND USE TAXES

The long-range increase in collections from general sales and related taxes continued throughout 1945. The rate of increase was the same as the previous year—7.5 per cent—during the fiscal year ended June 30, and the accelerated rate of rise during the later

TABLE V

STATE SALES AND GROSS INCOME TAXES

*Alabama	2% of gross receipts of retail sales, 5% on sale of automobiles; extends to amusements.
Arizona	2% of gross receipts of retail sales of tangible personal property; extends to other kinds of business at rate of 0.25%–2%.
Arkansas	2% of gross receipts of retail sales of tangible personal property; extends to amusements, public utilities, transmission services and printing.
*California	2½% of gross receipts of retail sales of tangible personal property.
*Colorado	2% of gross receipts of retail sales of tangible personal property; extends to public utilities and to meals.
Illinois	2% of gross receipts from retail sales of tangible personal property; 3% on gross receipts of public utilities.
Indiana	0.25% of gross income from wholesale sales; .5% of gross income from retail sales; 0.25% of income from display advertising; 1% of income from other sources.
*Iowa	2% of gross receipts from retail sales of tangible personal property; extends to amusements and public utilities.
*Kansas	2% of gross receipts from retail sales of tangible personal property; extends to public utilities, amusements, meals and drinks.
*Louisiana	1% of gross receipts of retail sales of tangible personal property.
*Michigan	3% of gross receipts of retailers; extends to public utilities.
*Mississippi	2% of gross receipts of retailers; 0.125% of gross receipts of wholesalers; extends to other kinds of business at rate of 0.25%–2.5%. Additional 10% "bootleg" or "black-market" tax on commodities sale or distribution of which is prohibited by law.
Missouri	2% of gross receipts of retail sales of tangible personal property; extends to amusements, public utilities, charges for rooms, meals, and drinks.
*New Mexico	2% of gross receipts of retailers; 0.125% of gross receipts of wholesalers; extends to other kinds of business at 0.25%–1%.
*North Carolina	3% of gross receipts of retailers; 0.05% of gross receipts of wholesalers.
*North Dakota	2% of gross receipts of retail sales of tangible personal property; extends to public utilities and amusements.
*Ohio	3% of gross receipts of retail sales of tangible personal property.
*Oklahoma	2% of gross receipts of retail sales of tangible personal property; extends to public utilities, amusements, and other kinds of business.
*South Dakota	2% of gross receipts of retail sales of tangible personal property; extends to public utilities and amusements.
*Utah	2% of gross receipts of retail sales of tangible personal property; extends to public utilities, amusements, lodgings and meals.
*Washington[a]	3% of gross receipts of retail sales of tangible personal property. 0.25% of gross income of extractors, manufacturers, retailers, printers and publishers, and wholesalers; except wholesalers of grain, 0.01%; miscellaneous businesses and professions, 0.5%; mechanical devices involving skill, 10%, involving only chance, 20%.
West Virginia[a]	2% of gross receipts of retail sales of tangible personal property; extends to services except professional and personal services; 50¢ exemption on food purchases. 0.5% of gross receipts of retailers; 0.15% of gross receipts of wholesalers; 1–6% of gross income of other kinds of business.
*Wyoming	2% of gross receipts of retail sales of tangible personal property; extends to public utilities, amusements, lodging and meals.

[a] Washington and West Virginia have both a retail sales and gross receipts tax.
* Complementary use tax.

months of the calendar year indicate that 1946 will show a still further increase. It should be recognized, however, that most, if not all, of this increase is the result of price inflation, and neither indicates more real value of goods purchased nor more real value of revenues to the states.

Although levied by only 23 states (Table V), sales taxes continued to provide the largest single component of state tax revenues, if unemployment compensation taxes are excepted, producing 14.1 per cent of total tax collections during the fiscal year. The only significant legislation during the year was the repeal of the Colorado Service Tax, an "economy" move of questionable soundness, since the service tax has considerable value in mitigating the regressive nature of the general sales tax. Colorado also abandoned the use of tokens and established a bracket system for collection of the tax. New legislation in Indiana gave the Governor power to appoint the State Treasurer to the position of director of the Gross Income Tax Division, and subjected trading in soy beans to a 1 per cent rate. Utah exempted sales of beer from the sales tax, and South Dakota did the same for motor fuel.

One sales tax case of importance was decided by the California Supreme Court. In *Richfield Oil Corporation v. State Board of Equalization*, the court upheld the imposition of the sales tax on shipments of oil to a foreign purchaser delivered at a tanker in a California port, on the ground that the tax is legally a privilege excise, measured by gross receipts from sales.

GASOLINE AND MOTOR FUEL TAXES

Revenues from motor fuel taxes ended their steady decline of the war years, and stabilized on a slight increase of 1.7 per cent for the fiscal year ended June 30, 1945; with the phenomenal increases in the latter months of the calendar year, it appears possible that collections for the 1946 fiscal year may reach the all-time high of the $942,000,000 of 1942, and it is almost certain that motor fuel taxes will regain the position of largest single current revenue source, held by the general sales tax for the past two years.

Further impetus to increased revenues will be given by the numerous raises in tax rates (Table VI). Idaho eliminated a special 1 mill per gallon tax, and added 1 cent, raising its rate to 6 cents per gallon; Iowa increased the rate from 3 cents to 4; Oklahoma achieved the highest rate of any state, adding 2 cents for a total of 7.5 cents per gallon; and Kansas added 1 cent to the previous 3-cent rate, effective when the Governor finds that moneys available to match Federal aid funds have been fully used; 4 cents remains the modal rate, levied by 20 states, but only eight states and the District of Columbia have lower rates, with Missouri alone at the bottom of the list with 2 cents per gallon.

Minnesota levied an excise tax of 4 cents per gallon on aviation gasoline, but provided refunds up to 3.5 cents on a sliding scale based on the quantity purchased. Rhode Island and South Carolina joined the states granting substantial refunds or exemptions on gasoline used off the highways, but the operation of the law in the Palmetto state was enjoined by the state Supreme Court. Maryland added Diesel fuels and other internal combustion fuels to the taxable list at the same rate as gaso-

TABLE VI

STATE GASOLINE TAX RATES

State	Cents per Gallon	State	Cents per Gallon	State	Cents per Gallon
Alabama	6	Maine	4	Oklahoma	7.5
Arizona	5	Maryland	4	Oregon	5
Arkansas	6.5	Massachusetts	3	Pennsylvania	4
California	3	Michigan	3	Rhode Island	3
Colorado	4	Minnesota	4	South Carolina	6
Connecticut	3	Mississippi	6	South Dakota	4
Delaware	4	Missouri	2	Tennessee	7
District of Columbia	3	Montana	5	Texas	4
Florida	7	Nebraska	5	Utah	4
Georgia	6	Nevada	4	Vermont	4
Idaho	6	New Hampshire	4	Virginia	5
Illinois	3	New Jersey	3	Washington	5
Indiana	4	New Mexico	5	West Virginia	5
Iowa	4	New York	4	Wisconsin	4
Kansas	4[a]	North Carolina	6	Wyoming	4
Kentucky	5	North Dakota	4		
Louisiana	7	Ohio	4		

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[a] 3 cents plus 1 cent additional to become effective when more money is needed to match Federal funds.

TABLE VII

STATE TOBACCO TAX RATES

State	Cigarettes	Cigars	Other Tobacco Products
Alabama	1½ mills each*	$1 to $10 per 1,000	Smoking tobacco, 1¢ for each 5¢ or fraction thereof of retail price; chewing tobacco and snuff, ½¢ on each 5¢ or fraction thereof of retail price.
Arizona	2¢ on each 20	5¢ cigars, 1¢ each 3; over 5¢, 1¢ each; small cigars, 2¢ each 20	Tobacco and snuff; 1¢ per ounce; cavendish, plug or twist, ¼¢ per ounce.
Arkansas	$2.50 per 1,000		
Connecticut	1½ mills each		
Florida	2 mills each		
Georgia	1½ mills each*	$1 to $13.50 per 1,000; small cigars, 1¢ per 10	
Idaho	1 mill each		
Illinois	1 mill each		
Iowa	1 mill each*		Cigarette papers; 1½¢ per 50; cigarette tubes, 1¢ per 50
Kansas	2¢ per 20		
Kentucky	1¢ per 10¢ of retail selling price		
Louisiana	2½ mills each	$3 to $27 per 1,000; small cigars, .75 per 1,000	Smoking tobacco, 1¢ per 5¢ of retail price up to 10¢; over 10¢ retail price, 1½¢ per 5¢ of retail price.
Maine	1 mill each		
Massachusetts	2 mills each		
Mississippi	1/5 of 1¢ each	1¢ for each 5¢ of retail selling price	Smoking tobacco, 1¢ for each 5¢ of retail selling price
New Hampshire	15% of retail price	15% of retail price	15% of retail price
New Mexico	1¢ per package of 10; 2¢ per package of 20	1¢ on each cigar retailing for more than 6¢; small cigars, 2¢ on each 20	
New York	1¢ for each 10		
North Dakota	1½ mills each*		Snuff, 2¢ per 1¼ ounce; cigarette papers, ½¢ per 50
Ohio	1¢ per 10		
Oklahoma	2½¢ per 10	$5 to $10 per 1,000; small cigars, 1¢ per 10	Smoking and chewing tobacco, 20% of list price
Pennsylvania	1¢ per 10		
Rhode Island	1 mill each		
South Carolina	1½ mills each	$3–$10 per 1,000; small cigars, 1¢ per 10	Snuff and chewing tobacco, 1¢ per 3 ounces; smoking tobacco, 1¢ per 5¢ of retail selling price
South Dakota	1½ mills each*		Cigarette papers, ½¢ per 50; cigarette tubes, 1¢ per 50
Tennessee	1½ mills each*	$1–$13.50; small cigars, 1¢ per 10	Tobacco and snuff, 5% of retail sales price
Texas	$1.50 per 1,000*		
Utah	1 mill each*		Cigarette papers, ½¢ per 50; cigarette tubes, 1¢ per 50
Vermont	1 mill each		
Washington	1 mill each*		
Wisconsin	1 mill each*		Cigarette papers, ½¢ per 50; cigarette tubes, 1¢ per 50

* Special rates for oversize cigarettes.

line. Several states extended or made explicit tax exemption for gasoline sold to the Federal Government.

TOBACCO TAXES

Revenues from state tobacco taxes fell off in 1945 for the first time in their history as a major state revenue source, the 9.4 per cent decrease being caused by the continued increase in the percentage of tobacco products being sold tax free to the armed forces. This trend was abruptly reversed at the end of the fiscal year, however, and from the tremendous increases in the latter months of the calendar year, it is clear that the all-time high of $160,000,000 in fiscal 1944 will be greatly exceeded by 1946 collections, which may reach the $200,000,000 mark.

Although there was no increase in the number of states levying tobacco taxes (31) during the year (Table VII), one tax has expired, in Delaware, and a new tax was enacted in Idaho. In addition, three states—Connecticut, Florida, and Massachusetts—increased their rates. Oregon enacted a tax of 1 mill per cigarette, but this tax was again defeated by referendum. Wisconsin added a use tax to its already existing cigarette sales tax. In Alabama a new schedule was adopted for the taxation of cigars, reducing slightly the previous rates.

ALCOHOLIC BEVERAGE TAXES

The post-war shortage boom in alcoholic beverage revenues began well before that of tobacco revenues, and produced an increase of 15.4 per cent during the fiscal year ended June 30, 1945. Even larger increases in all except the wine tax field are presaged for the 1946 fiscal year by the sharp climb of tax revenues from distilled spirits and beer in the latter half of the calendar year.

New, additional, or increased taxes were levied in 1945 by 11 states. Michigan joined the ranks of monopoly states levying additional excises by placing a 10 per cent sales tax on spirits containing more than 22 per cent alcohol sold through the state liquor store system. Total tax rates on distilled spirits were increased in Arkansas, Florida, Indiana, Massachusetts, South Carolina, and Vermont; those on beer in Alabama, Florida, Indiana, North Carolina, Oklahoma, and Utah; and those on wine by Florida, Indiana, and North Carolina. Arkansas discontinued its 2 per cent wine sales tax, and West Virginia reduced the permitted alcoholic content of non-intoxicating beer from 5 per cent to 3.2 per cent.

PERSONAL INCOME TAXES

Personal income taxes continued a sharp rate of increase, 10.8 per cent in 1945, but if New York is excluded from the computation, the figure falls to only 2.3 per cent. The slowing of the increase in most states was largely the result of a decline in income payments, but partly the result of deferment of soldiers' tax payments and exemption of military pay in a few additional states. Personal income taxes comprise 6.4 per cent of total tax revenues, compared to 5.8 per cent in 1944.

Legislation in the personal income tax field produced few important changes during the year (Table VIII), with no states being added or dropped from the list of 32 states and the District of Columbia, and no significant rate changes. California increased the personal exemptions from $2,000 to $3,000 and from $3,500 to $4,500 for single and married persons, respectively; Alabama and North Carolina extended the definition of dependents for whom exemptions may be claimed, while Maryland narrowed the definition. California, Iowa, and New York continued the percentage reductions of the tax previously granted; Maryland reduced the credit from 50 per cent to 33 1/3 per cent; and Oregon, which had credits of 75 per cent and 30 per cent in the two preceding years, had none for 1945. Alabama, Arizona, and Connecticut eliminated the necessity of making individual income tax returns under oath.

INHERITANCE, ESTATE, AND GIFT TAXES

Death and gift taxes continued to provide a negligible fraction of state revenues (2.4 per cent) in spite of a substantial percentage increase of 21.1 per cent over 1944. Changes in death tax collections are, of course, so capricious that no conclusions may be

TABLE VIII

STATE PERSONAL INCOME TAXES

State	Rate	Maximum Rate Applies to Income Over	Exemptions		
			Single	Head of Family	Dependents
Alabama	1.5–5	$ 5,000	$1,500	$3,000	$300
Arizona	1–4.5	9,000	10[a]	20[a]	4[a]
Arkansas	1–5	25,000	1,500	2,500	400
California	1–6[b]	30,000	3,000	4,500	400
Colorado	1–6[c]	10,000	1,000	2,500	400
Delaware	1–3	10,000	624	2,000	200
	1% additional emergency tax on gross income				
District of Columbia	1–3	20,000	1,000	2,500	400
Georgia	1–7	20,000	1,000	2,500	400
Idaho	1.5–8	5,000	700	1,500	200
Iowa[d]	1–5	4,000	10[a]	20[a]	5[a]
Kansas	1–4	7,000	750	1,500	200
Kentucky	2–5	5,000	1,000	2,500	400
Louisiana	2–6	50,000	1,000	2,500	400
Maryland[e]	2% on ordinary income 5% on investment income		1,000	2,000	400
Massachusetts	6% on interest; 1.5% on annuities and earned income; 3% on capital gains; plus 10% of tax.		2,000[f]	2,500[f]	250[f]
Minnesota	1–10	20,000	10[a]	30[a]	5[a]
Mississippi	1–6	25,000	1,200[i]	2,800[i]	400
Missouri	1–4	9,000	1,000	2,000	200
Montana	1–4	6,000	1,000	2,000	300
New Hampshire	Average rate on real estate applies to income from intangibles		200	200	. . .
New Mexico	1–4	100,000	2,500		200
New York	3–7[g]	9,000	1,000	2,500	400
North Carolina	3–7	10,000	1,000	2,000	200
North Dakota	. . .	15,000	500	1,500	200
Ohio	5% on income from intangibles		No exemption	. . . .	. . .
Oklahoma	1–9	8,000	850	1,700	300
Oregon	2–7	4,000	800	1,500	300
South Carolina	2–5[h]	6,000	1,000	1,800	200
Tennessee	4% on dividends from corporations, 75 per cent of whose property is taxable in the state; 6% on other dividends and interest		No exemption	. . . .	. . .
Utah	1–5	4,000	600	1,200	300
Vermont	4% on interest and dividends, 2% on other income[i]		1,000	2,000	250
Virginia	1.5–3	5,000	1,000	2,000	200
Wisconsin	1–7	12,000	8[a]	17.50[a]	4[a]

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[a] Deduction from tax.

[b] 15% reduction for tax years beginning before Jan. 1, 1947.

[c] Plus 2% surtax on resident's income from dividends, royalties and interest.

[d] In case of dependent father, mother, or grandparent taxpayer may substitute for the $5 deduction from the tax a deduction of $300 in computing net income. 50% credit allowed for taxes payable in 1945 and 1946.

[e] 33⅓% credit allowed for taxes payable on 1944 income.

[f] Exemptions apply against earned income only. In case of income derived from various intangibles there shall be exempt $1,000 "received by a person whose total income from all sources does not exceed $1,000 during the year; but said exemption shall not be given to any married person if the combined income of both husband and wife from all sources exceeds $1,500."

[g] 25% discount allowed against taxes payable on 1944 income.

[h] Plus surtax on interest and dividends of 3% on income between $500 and $800, 4% on income between $800 and $12,000, 5% on income over $12,000. Exemption for surtax only is $500.

[i] If income is derived wholly from interest and dividends, personal exemptions shall be $400 for single persons and $800 for married persons except when entire net income exceeds $1,500 for single persons and $3,000 for married persons.

[j] Includes $200 single and $300 head of family unqualified deduction for medical expenses and insurance.

drawn from the increase. No legislative changes during the year were of great significance, and no changes have been made in Table IX. Arkansas and New Mexico enacted new estate taxes to cover any part of the Federal credit not taken by their inheritance taxes. Arkansas also exempted from death taxation the intangibles of non-resident decedents, and five states—Illinois, Nebraska, Oklahoma, South Dakota, and Texas—enacted laws providing for reciprocal exemption of such intangibles.

CORPORATION INCOME TAXES

The increase in revenue from corporation income taxes and franchise taxes, measured by net income, fell off sharply in 1945, amounting only to 3.1, compared to 10 times that steep a rise (31.2 per cent) in the preceding year. If New York is excluded, the result is a decline of 6.8 per cent instead of the small increase, showing that most states have already felt the impact of cutbacks and cancellation of war contracts.

The only rate change was the enactment by Massachusetts of an additional 2.5 per cent tax on the net income of corporations for 1946, making a total basic rate of 5 per cent (Table X). Pennsylvania imposed a tax at the same rate as the existing corporation income tax (4 per cent) on cooperative agricultural associations which heretofore had been largely tax-exempt. Neither Maryland nor Oregon allowed any credit against the total tax due, but California continued its 15 per cent credit. Many other technical changes deal with depletion allowances, loss carry-back, renegotiated income, charitable deductions, and allocation of tax bases.

MISCELLANEOUS TAXES

The most significant development in other tax fields was the enactment by 24 states of insurance tax amendments eliminating discrimination against foreign insurance companies, assumed to be necessary because of the *Southeastern Underwriters* decision. It will be interesting to observe in future legislative sessions how many of these discriminatory taxes are resurrected under the terms of the *Lincoln National Life Insurance Company* case discussed above in the section on "Court Decisions."

In the bank tax field, the only addition to Table XI is Vermont, which levied a 2 per cent tax on state and national banks, replacing the former tax measured by deposits. No important changes in chain store taxes were enacted (Table XII).

In the property tax field, Michigan provided for taxation of intangibles having a business situs in the state on the basis of an allocation formula; Minnesota suspended permanently its

TABLE IX

ESTATE TAXES

State	Rate	Exemption
Alabama	4/5–16	$100,000
Arizona	4/5–16	100,000
Colorado	4/5–16	100,000; tax levied only if estate exceeds $250,000
Florida	4/5–16	100,000
Georgia	4/5–16	100,000
Mississippi	4/5–16	50,000
New York	1–20	20,000 to husband and wife 2,000 to ancestors and descendants 5,000 to minor descendants
North Dakota	2–23	20,000 to husband and wife 2,000 to ancestors and descendants 2,000–5,000 to minor descendants
Oklahoma	1–10	15,000
Oregon	1–15	10,000
Rhode Island	1	10,000
Utah	3–10	10,000

VII. PUBLIC FINANCE AND TAXATION

TABLE X

STATE TAXES ON THE NET INCOME OF CORPORATIONS

State	Rate in %	State	Rate in %	State	Rate in %
Alabama	3[a]	Maryland	1½	New York	6[i]
Arizona	1–5	Massachusetts	2½[f]	North Carolina	6
Arkansas	1–5	Minnesota	6[g]	North Dakota	3–6
California	4[b]	Mississippi	1–6	Oklahoma	6
Colorado	2	Missouri	2	Oregon	2[j]
Connecticut	2[c]	Montana	3[h]	Pennsylvania	4
District of Columbia	5	New Hampshire	Average property tax rate on intangible income	South Carolina	4½[k]
Georgia	5½[d]			Tennessee	3¾[l]
Idaho	1½–8			Utah	3[m]
Iowa	2			Vermont	2
Kansas	2			Virginia	3
Kentucky	4			Wisconsin	2–6[n]
Louisiana	6[e]	New Mexico	2		

[a] Exemption of $1,000.

[b] Minimum tax of $25. 15% credit allowed against bank and corporation franchise taxes for 1945.

[c] $10 minimum; tax is not to be less than one mill on sum of interest bearing debt, capital stock, surplus, undivided profits, and reserves, less deficit and stocks and securities held.

[d] Tax is not to be less than 2 per cent of entire net income plus compensations to officers and to stockholders owning in excess of 5 per cent of the stock after deducting $10,000 and deficit if any.

[e] Exemption of $3,000.

[f] Minimum is not to be less than 1/20 of 1 per cent on capital stock. Additional tax of 10% of tax computed, extended through 1946.

[g] Exemption of $1,000.

[h] Minimum tax of $5. Corporations ceasing to do business in state pay 3% on last year's net income.

[i] 3% on income from dividends. Maximum tax of $25, or 1 mill per dollar on capital stock.

[j] Minimum tax of $10.

[k] Minimum tax of 3 per cent of net income plus salaries and compensation paid to officers and to any stockholder owning in excess of 5 per cent of capital stock after deducting $6,000 and any deficit reported for the year.

[l] Or tax on capital stock, whichever is greater.

[m] Minimum tax of $10, tax is not to be less than 1/20 of 1 per cent of value of tangible property.

[n] Plus certain surtaxes.

tax on money and credits; Missouri adopted a new constitution providing for a classified property tax and taxation of intangibles on an income basis; and New Jersey exempted intangibles from the general property tax. Minnesota adopted a formula for allocating the flight property of airlines according to the recommendations of the National Association of Tax Administrators, rather than those of the Civil Aeronautics Board. The United States Supreme Court ruled in *City of Cleveland v. United States* that low cost housing projects owned by an instrumentality of the Federal Government are exempt from local property taxation. Finally, the repeal of the Georgia poll tax as a result of a campaign by Governor Arnall should be noted, though of little revenue significance.

ADMINISTRATION

The new Missouri constitution provides for a Department of Revenue, which is to be charged with the administration and collection of state taxes collected in the past by three or four major state agencies and half a dozen minor ones. The integrated administration made possible by this change should improve efficiency and completeness of collection. Other aspects of financial administration are similarly improved. In Maine, many functions in tax administration, heretofore performed by other officials, were transferred to the State Tax Assessor, and this move also is expected to improve efficiency and economy in tax administration.

The movement for thorough surveys of state tax systems continued with increased impetus, and approximately one-half the states have comprehensive studies under way or recently completed. Notable among these are the studies, undertaken early in 1946 by committees in Arkansas and Florida, looking toward the study and necessary revision of the entire state tax system.

TABLE XI

STATE TAXES ON THE NET INCOME OF BANKS

State	Rate %
Alabama	6
Arizona	5
California[a]	4–8
Colorado	6
Connecticut	2
Idaho	1, 5–8
Massachusetts	6
Minnesota	8
New York[b]	4½
North Dakota	4
Oklahoma	1–6
Oregon	2
Rhode Island	4
South Carolina	4½
South Dakota	3
Utah	3
Vermont	2
Wisconsin[c]	2–6 and surtax

[a] Less 15% credit for 1944.
[b] Does not apply to savings banks.
[c] Does not apply to mutual savings banks.

TABLE XII

STATE TAXES ON CHAIN STORES

State	Maximum Tax	Applicable to Each Store
Alabama	$112.50	20
Colorado	300	24
Delaware	$10 plus 10 aggregate c in excess of	¢ for each $100 of ost value of goods $5,000.
Florida	400	15
Georgia	200	40
Idaho	500	19
Indiana	150	20
Iowa	155	50
Kentucky	200	250
Louisiana	550	500
Maryland	150	20
Michigan	250	25
Mississippi	300	250
Montana	200	4
North Carolina	250	200
South Carolina	150	30
South Dakota	150	50
Tennessee	$3 for each floor space	100 square feet of 1
Texas	750	50
West Virginia	250	75

MUNICIPAL FINANCE

By H. K. Allen

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GENERAL

An examination of the financial condition of municipalities for the year 1945 shows definite signs of a continuation of the improvement which began in 1944. This further improvement is indicated especially by a decline in tax delinquencies, and a decrease in the number of defaults. As might be expected, war has made an imprint upon municipal finance. Among the most conspicuous of these effects are the reductions in expenditures for welfare and outlays.

EXPENDITURES

The most recent year for which the comprehensive per capita statistics of the Bureau of the Census in final report form are available is for 1942.

PER CAPITA EXPENDITURES

While some of the absolute expenditures just noted may appear large, yet too great significance should not be attached to them. The size of an expenditure becomes intelligible in terms of service when one discovers

VII. PUBLIC FINANCE AND TAXATION

MUNICIPAL EXPENDITURES

(000 omitted)

Operation and Maintenance, by Major Functions

Year	Total	General Government	Public Safety	Health and Sanitation	Highways
1942[1]...........	$1,546,634	$125,903	$358,937	$137,228	$ 93,512
1940[1]...........	2,193,915	168,712	350,462	139,498	108,537
1938[1]...........	2,167,459	163,089	346,168	136,956	111,979
1936[1]...........	1,838,803	150,213	317,154	141,207	108,910
1934[1]...........	1,744,975	135,766	298,758	134,296	111,306
1932[1]...........	1,806,517	149,909	328,797	160,010	127,670
1929...........	1,730,288	140,521	339,816	174,858	147,375
1927...........	1,562,615	136,848	315,362	160,259	137,892
1924...........	1,287,484	111,856	259,275	130,388	109,807
1922...........	1,155,691	105,174	234,199	115,488	98,763
1919...........	697,319	72,585	146,763	75,847	65,003
1915...........	546,568	62,793	120,696	55,758	60,615
1911...........	452,899	53,766	106,120	45,691	52,214
1907...........	367,367	42,703	87,885	36,899	42,718
1903...........	278,173	30,842	71,020	25,807	34,208

[1] Statistics for 1932 to 1942 are for cities having a population over 100,000. All other data are for cities over 30,000. Because of some changes in the basis of classification, the figures for 1937, 1938, 1939, 1940, and 1942 are not strictly comparable with those for earlier years. Beginning with 1937, the financial statistics of public-service enterprises were reported separately from those of general government.

Year	Charities, Hospitals, and Corrections	Schools	Libraries	Recreation	Miscellaneous
1942...........	$345,841	$377,123[1]	$21,339	$55,737	$ 31,014
1940...........	500,003	631,432	25,813	65,679	203,779
1938...........	508,134	625,032	25,519	64,946	185,637
1936...........	366,466	571,922	21,119	52,303	109,504
1934...........	345,214	526,864	20,271	48,306	124,194
1932...........	234,419	629,353	.....[1]	63,117	113,242
1929...........	116,147	622,587	23,029	61,863	94,091
1927...........	99,806	560,668	20,167	53,839	77,731
1924...........	79,239	475,725	15,782	41,819	63,590
1922...........	76,627	422,843	14,326	38,703	49,603
1919...........	53,262	216,701	9,079	24,204	33,870
1915...........	38,285	162,332	7,134	20,416	18,535
1911...........	30,647	127,604	5,939	17,114	13,801
1907...........	24,408	102,395	4,989	11,794	13,572
1903...........	18,280	80,853	4,067	7,457	5,634

[1] Expenditures for schools in 1942 include those for city corporation only whereas data for earlier years include independent school districts. Expenditures for libraries and schools combined in 1932.

the number among whom it is divided. The per capita expenditures of cities, both as a whole and for particular items have varied greatly from time to time, but the general tendency has been to increase. The following table shows the change in per capita expenditures for selected years.

IMPORTANCE OF DIFFERENT MUNICIPAL EXPENDITURES

There is a wide difference in the importance attached to the different functions performed by municipalities. While over a period of years there has been some change in the relative importance of some of the

Year	Total	General Govern-ment	Public Safety	Health and Sani-tation	High-ways	Char-ities, Hos-pitals, and Correc-tions	Educa-tion Schools*	Libra-ries**	Recrea-tion**	Miscel-laneous*
1942	$40.71	$3.31	$9.45	$3.61	$2.46	$ 9.10	$ 9.93	$ .56	$1.47	$ .82
1940	57.75	4.44	9.22	3.67	2.86	13.16	16.62	.68	1.73	5.37
1938	57.36	4.32	9.16	3.62	2.96	13.45	16.54	.68	1.72	4.92
1936	48.83	3.99	8.43	3.75	2.89	9.73	15.19	.56	1.39	2.91
1934	46.43	3.61	7.95	3.57	2.97	9.18	14.56	...	1.29	3.30
1932	47.87	3.97	8.71	4.24	3.38	6.21	16.68	...	1.67	3.00
1929	43.45	3.66	8.46	4.33	3.70	2.78	16.14	.59	1.55	2.25
1927	40.77	3.46	8.13	4.13	3.60	2.49	15.08	.53	1.40	1.94
1924	35.61	3.01	7.10	3.55	3.07	2.08	13.52	.44	1.15	1.67
1922	33.15	2.94	6.66	3.25	2.87	2.08	12.50	.41	1.09	1.34
1919	21.63	2.22	4.53	2.34	2.04	1.59	6.88	.28	.74	1.01
1915	18.45	2.10	4.06	1.86	2.06	1.26	5.58	.24	.68	.61
1911	17.62	2.08	4.12	1.77	2.04	1.17	5.04	.23	.65	.53
1907	15.95	1.86	3.80	1.59	1.91	1.05	4.42	.21	.51	.59
1903	13.19	1.46	3.35	1.21	1.64	.86	3.86	.10	.35	.27

* Payment for pensions are included in column "Miscellaneous" for the years 1911 to 1928 inclusive; for the years 1903 to 1909 inclusive, they are included with expenses of police, fire, and school departments.

** Payments for expenses of art galleries and museums are included in column "Recreation" for the years 1911 to 1928 inclusive; for the years 1903 to 1909 inclusive, they are included with the expenses of libraries; expenditures for libraries and schools are combined for the years 1932 to 1935.

items, it is interesting to note that expenditures for education have always been larger than any other, and that the relative importance of this item up to 1932 tended to increase with the years. The most significant development in recent years, it will be noted, is the increase in expenditures for charities, hospitals, and corrections. The following table shows the relative importance of the different services over a period of years.

PERCENTAGE OF EXPENDITURES FOR DIFFERENT FUNCTIONS

Year	General Govern-ment	Public Safety	Health and Sani-tation	High-ways	Charities, Hospitals, and Correc-tions	Educa-tion Schools*	Libra-ries*	Recrea-tion	Miscel-laneous
1942	8.1	23.2	8.9	6.0	22.4	24.4	1.4	3.6	2.0
1940	7.7	16.0	6.3	4.9	22.7	28.8	1.2	3.0	9.4
1938	7.5	16.0	6.3	5.2	23.4	28.8	1.2	3.0	8.5
1936	8.2	17.2	7.7	5.9	19.9	31.1	1.1	2.8	6.0
1934	7.8	17.1	7.7	6.4	19.8	31.4	...	2.8	7.1
1932	8.3	18.2	8.9	7.1	13.0	34.8	...	3.5	6.3
1929	8.4	19.5	10.0	8.5	6.4	37.2	1.4	3.6	5.2
1927	8.5	20.0	10.1	8.8	6.6	37.0	1.3	3.4	4.8
1924	8.5	19.9	10.0	8.6	5.9	38.0	1.2	3.2	4.7
1922	8.9	20.1	9.8	8.7	6.3	37.7	1.2	3.3	4.0
1919	10.2	21.0	10.8	9.4	7.3	31.8	1.3	3.4	4.7
1915	11.4	22.0	10.1	11.2	6.8	30.2	1.3	3.7	3.3
1911	11.8	23.4	10.1	11.6	6.6	28.6	1.3	3.7	3.0
1907	11.7	23.8	9.9	12.0	6.6	27.7	1.3	3.2	3.6
1903	11.1	25.3	9.2	12.4	6.5	29.3	1.5	2.7	2.1

* Percentages for schools and libraries combined for the years 1932 to 1935.

VII. PUBLIC FINANCE AND TAXATION

SOURCES OF REVENUE

Property Taxes.—The revenue of cities arises from a number of sources. In most cities more than 90 per cent of the funds which go into the general revenue fund come from the general property tax. This is a tax levied against real and personal property. In addition to the general property tax the Census Bureau designates certain taxes as special property taxes. Such include taxes upon the capital stock of corporations, upon savings banks and other financial institutions, and upon insurance companies. Included in this, also, would be taxes levied upon mortgages at time of recording, taxes upon incomes and estates, upon investments, and a wide range of specific taxes.

Poll and Business Taxes.—In many cities, also, some form of poll tax continues to be used, although such taxes are much less important than formerly. No generalization can be made as to method of levy since this varies greatly from city to city. In addition, business and non-business license, taxes make up a large group of levies upon different types of business activities, some of which, of course, are levied primarily for regulative purposes. The latter include such levies as those upon dogs, dance halls, etc. Receipts from special assessments constitute an important item, but they do not enter the general revenue fund. In some places, at a particular time, subventions and grants are an important source of income, while in some cities, also, the earnings from public enterprises are not unimportant. The relative importance of the major sources of revenue over a period of years is shown in the following table.

PERCENTAGE OF RECEIPTS FROM DIFFERENT SOURCES OF REVENUE

Year	The General Property Tax	Other Taxes and Licenses	Special Assessments	Subventions and Grants, Donations and Pension Assessments	Earnings of Public Service Enterprises[2]	Other Revenues
1942[1]	65.2	9.8	1.2	17.4	....	6.4
1940	63.4	7.7	1.0	18.3	....	9.6
1938	64.7	8.1	1.1	16.1	....	10.0
1936	59.7	7.9	1.6	14.3	10.4	6.1
1934	62.6	5.3	2.2	13.5	9.8	6.6
1932	66.2	4.7	3.9	8.5	9.3	7.4
1929	64.7	6.4	7.2	5.8	9.8	6.1
1927	66.1	5.7	7.7	4.9	9.6	6.2
1924	66.1	5.7	5.9	5.3	10.3	6.8
1922	66.9	5.2	4.8	5.9	9.0	8.2
1919	66.0	7.6	5.6	4.1	10.2	6.4
1915	62.4	7.8	8.5	4.2	10.0	6.9
1911	61.9	8.7	8.4	4.6	10.6	5.8
1907	59.4	10.6	8.2	4.8	11.2	5.8
1903	61.4	9.8	7.6	4.3	11.5	5.5

[1] For all cities having populations over 25,000. Statistics for 1932 to 1940 are for cities having a population over 100,000. For years prior to 1932, data are for cities over 30,000.

[2] Listed separately in years 1937 to 1942.

PER CAPITA TAX BURDEN

That the tax burden imposed by cities has been increasing much more rapidly than population is readily seen when one notes the change in the per capita amounts collected from different sources over a period of years.

MUNICIPAL INDEBTEDNESS

Receipts from sources of revenue may just pay expenses, more than pay expenses, or fail to pay them. In many cases the administrators of the finances have planned for a surplus, but because of a shrinkage in

PER CAPITA RECEIPTS FROM DIFFERENT SOURCES

Year	Total	The General Property Tax	Other Taxes and Licenses	Special Assessments	Subventions and Grants, Donations and Pension Assessments	Earnings of Public Service Enterprises[2]	Other Revenues
1942[1]	$49.79	$32.45	$4.89	$....	$ 8.65	$....	$3.80
1940	74.15	47.04	5.71	.71	13.52	....	7.17
1938	74.28	48.02	5.97	.82	11.99	....	7.48
1936	76.83	45.83	6.03	1.21	10.95	8.03	4.78
1934	72.13	45.17	3.77	1.61	9.71	7.09	4.78
1932	68.82	45.57	3.24	2.70	5.84	6.42	5.03
1929	69.63	45.07	4.43	5.01	4.02	6.82	4.28
1927	69.77	46.09	3.95	5.36	3.40	6.67	4.29
1924	58.41	38.59	3.33	3.43	3.12	6.00	3.96
1922	53.57	35.85	2.80	2.58	3.13	4.83	4.38
1919	35.26	23.29	2.68	1.98	1.43	3.61	2.27
1915	30.00	18.73	2.36	2.54	1.26	3.03	2.08
1911	28.07	17.37	2.44	2.35	1.30	2.98	1.63
1907	24.67	14.64	2.63	2.02	1.18	2.77	1.43
1903	21.14	12.98	2.06	1.60	.91	2.42	1.16

[1] For all cities having populations over 25,000. Statistics for 1932 to 1940 are for cities having a population over 100,000. For years prior to 1932, data are for cities over 30,000.

[2] Listed separately in years 1937 to 1942.

revenue they have had to resort to borrowing.

In the calculations of the Census Bureau, municipal indebtedness is divided into two distinct groups—long-term obligations and short-term loans. The former includes all obligations which have a number of years to run and for the redemption of which no assets other than a sinking fund or earnings of public-service enterprises have been specifically designated. The latter, on the other hand, includes such indebtedness as is evidenced by warrants, accounts payable, and other short-term obligations. The adjoining table shows the net indebtedness for certain years.

MUNICIPAL INDEBTEDNESS

(000 omitted)

Year	Net Long-Term Debt	
	Amount	Per Capita
1943[1]	$6,451,536	$169.86
1940	6,746,826	177.60
1938	6,470,850	171.23
1936	6,331,516	168.13
1934	6,380,478	169.76
1932	6,289,078	166.66
1930	5,967,563	153.02
1929	5,529,835	144.33
1927	4,943,507	134.27
1924	3,481,980	110.09
1922	3,280,645	97.57
1919	2,541,172	81.18
1915	2,245,906	77.86
1911	1,808,828	67.52
1907	1,808,878	56.04
1903	933,004	44.71

[1] For all cities having population of more than 25,000. Statistics for years 1932 to 1940 are for cities having a population over 100,000. For years prior to 1932, data are for cities over 30,000.

DEVELOPMENTS IN THE BOND MARKET

The aggregate disposals of long-term obligations by state and municipalities for the first ten months of each year for a series of years are shown in the following table. Total issues for the months covered increased from $641,779,000 in 1944 to $671,251,000 in 1945.

FEDERAL EMERGENCY ADMINISTRATION OF PUBLIC WORKS

The table showing municipal bond issues does not include the extension grants made to municipalities for public works projects by the Federal Emergency Administration of Public Works. This agency was created by the National Industrial Recovery Act which became effective June 16, 1933. Under Title II of this Act, authority was granted to the Administrator to

MUNICIPAL BOND ISSUES

(000 omitted)

Year	Total First Ten Months	Year	Total First Ten Months
1945	$ 671,251	1928	$1,094,074
1944	641,779	1927	1,297,029
1943	380,990	1926	1,149,105
1942	488,415	1925	1,174,724
1941	823,115	1924	1,280,504
1940	954,593	1923	850,952
1939	956,386	1922	990,188
1938	800,606	1921	868,392
1937	769,778	1920	570,109
1936	955,500	1919	581,871
1935	973,869	1918	245,789
1934	725,660	1917	402,828
1933	392,580	1916	402,548
1932	701,938	1915	434,829
1931	1,156,129	1914	423,171
1930	1,211,857	1913	327,902
1929	1,055,135		

Source: *Commercial and Financial Chronicle.*

furnish grants, not subject to repayment, for 30 per cent of the total expenditures incurred for the payment of labor and material costs on approved public works projects. Moreover, the agency was authorized to accept 4 per cent general obligation or revenue bonds of the municipalities as security for the loan portion of the allotment. In 1934 Congress authorized the Reconstruction Finance Corporation to purchase marketable securities from the Public Works Administration and provided that moneys realized by the Public Works Administration from such sales might be used for making additional loans, but not grants, in aid of non-Federal public-works projects under Title II of the N.I.R.A.

In addition to the program of public works administered under Title II of the National Industrial Recovery Act, the Public Works Administration carried on a separate program pursuant to the Emergency Relief Appropriation Act of 1935. Under the latter act the amount of the grant was fixed by administrative determination at 45 per cent of the cost of the project, with a corresponding reduction in the amount to be furnished by the applicant. Provision was made under this act for the sale of bonds acquired as collateral for municipal loans either on the open market or to the Reconstruction Finance Corporation, the proceeds to be used only for the making of loans. In practice the sales were confined to the Reconstruction Finance Corporation which, in turn, sold the securities on the open market.

TAX DELINQUENCY

Tax delinquency is a natural phenomenon of a business depression, and a rising trend of tax delinquency inevitably cripples municipal functions and weakens municipal credit. During periods of prosperity, on the other hand, tax delinquency drops sharply. Dun and Bradstreet has made a study of the trend of median year-end tax delinquency in 150 cities over 50,000 population for the 13-year period from 1930 to 1944. The following percentages show the median delinquency on the current tax levy at the end of each fiscal year:

1944	3.90%	1936	13.9%
1943	4.70%	1935	18.0%
1942	6.00%	1934	23.05%
1941	6.80%	1933	26.35%
1940	8.70%	1932	19.95%
1939	9.25%	1931	14.60%
1938	10.7%	1930	10.15%
1937	11.3%		

These figures show a substantial gain in collections since 1933, and delinquency in 1944 was lower than it was in 1930. Only fragmentary data are available for 1945, but it is believed that little change has occurred.

DEBT DEFAULTS

The *Bond Buyer* estimated, with certain reservations, that 152 cities and towns were in default on their bonds on Dec. 1, 1945. This represents a slight reduction from the previous year when 158 incorporated places were in default. The following states, according to the *Bond Buyer,* had the largest number of defaults:

Florida	57	Colorado	9
Texas	23	Michigan	7
Pennsylvania	11	Oklahoma	5
North Carolina	11	Minnesota	4

It is significant to note that Florida and North Carolina, which are included in the above group, had large increases in local indebtedness between 1912 and 1932, the percentages being 2,779.01 and 1,300.8 respectively. The indebtedness of Maine during the same period increased only 73.2 per cent, while that of Massachusetts increased only 99.2 per cent. Maine had one incorporated place in default in 1944, and Massachusetts had none.

While no data are available regarding the volume of municipal bonds in default, it can reasonably be stated that the volume of such defaults declined during 1945.

DEBT ADJUSTMENT LEGISLATION

For the purpose of aiding municipalities which are in default on their obligations, various states have recently passed state receivership and debt adjustment acts. Boards or commissions have been established to supervise local indebtedness in general, to supervise the refunding of municipal bonds, and to act as receivers in event of failure to meet debt service.

A Federal Municipal Bankruptcy Act was enacted May 24, 1934. This act, which was declared unconstitutional by the Supreme Court of the United States in May, 1936, was designed to enable any taxing district, with the consent of its creditors and the approval of a Federal District Court, to adjust its debt structure. According to the *Bond Buyer*, only 27 cities, one county, one school district, 41 irrigation districts, and one road district filed petitions under the Municipal Bankruptcy Act during the two years which the law was in effect.

On Aug. 16, 1937, President Roosevelt signed a new Municipal Bankruptcy Act, designed to replace the original measure which was declared unconstitutional. The present law is similar in its provisions to the invalidated law. It provides a procedure whereby insolvent taxing agencies, such as local drainage, levee, irrigation, road, and sewer districts, as well as towns, boroughs, and municipalities, may effect compositions with their creditors. These compositions are approvable only when the districts or agencies file voluntary proceedings in bankruptcy accompanied by plans approved by 51 per cent of all the creditors of the district or town. The plan of composition can not be confirmed unless accepted in writing by creditors holding at least 66 2/3 per cent of the aggregate amount of the indebtedness of the petitioning district or taxing agency, unless the judge is satisfied that the taxing districts were authorized by law to carry out the plan and there had been a finding by the Court that the plan was fair, equitable, and for the best interests of the creditors. According to the *Bond Buyer*, 275 municipalities had filed petitions under the 1937 Federal Municipal Bankruptcy Act on Dec. 1, 1945.

FEDERAL INCOME AND PROFITS TAXES

By Mark Carter Mills
Associate Professor, Indiana University

INCOME TAX LEGISLATION

Two revenue acts were passed by Congress in 1945. The first, called the Tax Adjustment Act of 1945, was passed in July; the second, the Revenue Act of 1945, enacted early in November, was much broader in scope than the earlier act and, in some respects, superseded it. The Adjustment Act was primarily concerned with specific problems of reconversion, while the later law was concerned with the more general aspects of the situation that had developed with the end of hostilities. Both measures became effective Jan. 1, 1946.

TAX ADJUSTMENT ACT OF 1945

The general purpose of the Tax Adjustment Act, which was passed in

July, after the end of hostilities in Europe but before the Japanese surrender, was to make available to businesses certain credits or refunds, which would not otherwise have been available, for periods ranging up to a maximum of six years after the war. This provision was designed primarily as an aid to reconversion by smaller businesses. A further provision of the law designed to aid smaller businesses was to increase the excess profits tax exemption from $10,000 to $25,000, beginning in 1946.

In providing that post-war excess profits tax credits should be made currently available, a distinction was made between the years 1942 and 1943 on the one hand and the period beginning in and following 1944. For the earlier years the post-war credit was made available on Jan. 1, 1946, by providing that the refund bonds issued in connection with the withheld amount of excess profits tax become redeemable at the option of the taxpayer. For the later period the post-war credit was made currently available to be used as a reduction in the amount of excess profits tax to be paid. This provision had the effect of reducing the former 95 per cent excess profits tax with 10 per cent of it withheld for a number of years after the war to a straight 85½ per cent tax. A further provision of the law provided for speeding up refunds from carry-backs of losses and unused excess profits credit. Since the Revenue Act of 1945 abolished all excess profits taxes beginning Jan. 1, 1946, the most important provision of the Tax Adjustment Act, which was to increase the excess profits tax exemption from $10,000 to $25,000, lost its significance. Other than this provision, the law was in no sense a tax reduction act but rather provided a means by which refunds already provided for would be paid more quickly and thus aid in the process of reconversion.

POST-WAR TAX POLICY

Long-range problems of post-war tax policy continued to be widely discussed during 1945 with an added emphasis upon Federal taxation as a means of encouraging business and promoting employment. Since the two principal Federal taxes affecting business are the excess profits tax and the corporate net income tax, special attention was given them. It was generally recognized that in many respects the problem of formulating a workable post-war program was more difficult than the problem of war taxation. While it is true that the amount to be collected will be much less than during the war years, nevertheless it will be necessary to raise at least three times as much as the Federal tax receipts prior to the war.

The most important and widely publicized of the group plans for post-war tax policy offered during the year was that of the Committee on Post-war Tax Policy of which the chairman was Roswell Magill, former Under-Secretary of the Treasury, and the Director of Research, Dr. Harley L. Lutz. The proposals of the Committee were embodied in a book, *A Tax Program for a Solvent America.*

The Committee on Post-war Tax Policy differed from most of the earlier groups offering tax programs in that it did not attempt to estimate the future national income. What it did do was to offer three budgets of $15,000,000,000, $18,000,000,000, and $22,000,000,000 based upon assumptions of national incomes of $115,000,000,000, $125,000,000,000, and $140,000,000,000. Making maximum employment its goal, the Committee suggested alternate plans of raising revenue to fit the assumed situations. Also differing from most of the other groups, the Committee recommended, that the Federal budget be balanced annually rather than over the business cycle. In general, it may be said that the Committee believes in a widely diversified revenue system.

More specifically the Committee recommended that the 3 per cent normal tax on individuals be abolished but that surtaxes starting at 15 per cent to 20 per cent, depending on the size of the budget, be retained; the excess profits tax be repealed but with the provision that the carry-back of unused excess profits credits be retained for two years; the regular corporation tax rates approximate those set for individual incomes; estate and gift taxes be collected only by the states; the method of taxing capital gains be left unchanged for at least five years; substantial levies on excises be retained as part of the Federal revenue system to add stability of yield under changing economic conditions; and in case of a budget of as much as $22,000,000,000, a 5 per cent sales tax should be levied to avoid deficit financing.

THE TREASURY PROGRAM

Secretary Vinson presented the Treasury program before the Ways and Means Committee of the House on Oct. 1. In making his proposals the Secretary made it clear that what he was proposing was a specific program for the year 1946 and not a long-range program for the whole post-war period. He said: "After climbing the mountain of war taxation in 1940, 1941, 1942, and 1943, and moving along the crest during 1944 and 1945, we are now in the fortunate position of being able to go a little way down the other side. We did not reach the peak of wartime taxation in one revenue act; it took five major acts in four years. I am sure we all agree that more than one step will be necessary to convert the wartime tax system into a post-war system."

Secretary Vinson's proposals were based on the assumption that, if the prevailing rates were kept in effect, the total tax receipts of the Government of $46,500,000,000 in the fiscal year 1945 would decline to $36,000,000,000 for the fiscal year 1946. He presented further Treasury estimates that, under the existing law, the tax receipts for the calendar year 1946 would be $32,500,000,000. Considering all factors involved, it was Secretary Vinson's judgment that total reductions resulting from revision of the tax laws should not exceed $5,000,000,000 for 1946.

In proposing the measures involved in the Administration program, the Secretary pointed out that the situation was paradoxical in that there were threats of both inflation and deflation and that in so far as possible the tax program should be formulated in such a way as to prevent both. He pointed out that, although the excess profits tax had been a major source of revenue since the tax was imposed in 1940, it had never been viewed primarily as a revenue measure but as a means of preventing war profiteering and as a control measure. He believed, however, that with the end of the war the excess profits tax could be eliminated as a control measure and that in spite of the loss of revenue to the Treasury, should be abolished as an obstacle to the reconversion and expansion of business necessary for a high level of employment and income. He also pointed out that there had always been difficulty in distinguishing between normal and excess profits and that this would become still more difficult in time of peace when the tax was no longer needed as a method for preventing wartime profiteering.

Although the problem of excess profit taxation has been considered as a problem of big business, Secretary Vinson said that Treasury studies showed that in 1943 over 70 per cent of the corporations subject to income profits taxes had net incomes of less than $100,000. He also said that in 1943 one-third of the corporations with incomes of $1,000,000 and over did not have taxable excess profits. As a result, the repeal of the excess profits tax would give relief to corporations of all sizes and not merely to large businesses. He estimated that, at the level of profits expected for 1946, the yield for the excess profits tax would be $2,555,000,000 if the law were left unchanged.

In the case of the individual income taxes, Secretary Vinson proposed elimination of the 3 per cent normal tax on individuals effective Jan. 1, 1946. He estimated that this would remove about 12,000,000 low income persons from the tax rolls and reduce burdens for all individuals by $2,085,000,000. He proposed that graduated surtaxes should be left in force at present rates. Secretary Vinson also proposed a sharp reduction in wartime excise taxes to be made effective July 1, 1946. He estimated this would reduce the consumer tax burden by $547,000,000 annually. He also favored a temporary freeze of social security taxes at present rates.

In brief the chief Treasury proposals were: 1. to drop the 3 per cent "normal" tax on individuals effective Jan. 1, 1946; 2. to repeal the 95 per cent excess profits tax on corporations also effective on the same date; 3. a sharp reduction in excise taxes on consumer goods to take effect July 1, 1945; and 4. a temporary freeze of social security taxes at present rates.

TAX PLANS IN CONGRESS

The tax bills reported by the Ways and Means Committee of the House and the Senate Finance Committee were in substantial agreement with each other on major issues and not far different in approach from the Treasury plan submitted a few days earlier by Secretary Vinson.

The most important features of the Ways and Means Committee proposals were as follows: 1. to lessen the impact of the 3 per cent normal tax on individual incomes by allowing exemptions of $500 for each family member instead of $500 for each taxpayer and to cut each surtax bracket by four percentage points with the proviso that each taxpayer should have at least a 10 per cent reduction in his total tax; 2. to reduce the excess profits tax on corporations from 85.5 per cent to 60 per cent and the normal and surtax rates from 40 per cent to 36 per cent and repeal the capital stock and declared-value excess profits tax; 3. to set July 1, 1946, as the date of expiration of the $5 automobile "use" tax and of the wartime increases in excise taxes and to refund floor stock taxes paid by merchants on goods already in inventory when the excises were abolished; and 4. to freeze social security payroll taxes at 1 per cent each on employers and employees for another year.

The Senate Committee agreed completely on freezing the social security taxes on the repeal of the automobile "use" tax and on the repeal of the capital stock and declared-value excess profits tax. The Senate went further than the House in proposing cuts in the wartime excises.

The major disagreement between the two houses was on corporation taxes. The Senate proposed complete repeal of the excess profits tax on Jan. 1, 1946 with no changes in normal tax or surtax. On individual income tax rates there was major agreement. Both proposed to retain the 3 per cent normal rate but to apply the existing surtax exemption in its calculation. The two bills were sent to a conference committee to be brought into final agreement.

THE REVENUE ACT OF 1945

General Purpose.—The Revenue Act of 1945 was notable in that it was the first Federal tax law in 16 years designed to reduce the amount of revenue to be collected. In its final form the act represented a compromise between the plans offered by the Treasury, the Ways and Means Committee of the House, and the Senate Finance Committee but offered a greater reduction in total revenue than any of the separate plans. Secretary Vinson had asked for a reduction in taxes of $5,000,000,000 while the bill as signed by President Truman was planned to reduce taxes in 1946 on individuals by $2,644,000,000 and on business by $3,136,000,000 for a total of $5,920,000,000, with an estimated additional relief of $140,000,000 to result from the repeal of the automobile and motorboat "use" taxes.

Individual Income Tax.—The normal tax rate of 3 per cent was retained but the exemption for the normal tax was made the same as that for the surtax—$500 for each taxpayer and for each dependent—instead of a single $500 exemption. This provision, it was estimated, would entirely exempt 12,000,000 low-income taxpayers who were subject to the tax in 1945. Surtax rates were lowered three percentage points in each bracket. The effect of this was to make the surtax rate 17 per cent on the first $2,000 of income subject to the tax with a top rate of 88 per cent on surtax net income over $200,000 in place of the former rates ranging from 20 per cent to 91 per cent. On top of this, individual taxpayers were allowed a flat reduction of 5 per cent in the total normal and surtax after it had been computed by the new method. The withholding method of collecting taxes on wages and salary incomes was retained with the use of new withholding tables. Veterans were given preferred treatment by making all service pay received by enlisted men tax free for any year after Dec. 31, 1940. Both officers and enlisted men were given three years from the time of discharge to pay back taxes without penalty on delinquencies.

Individual Income Taxes.—The effect that the Revenue Act of 1945 will have on the incomes of married persons with two dependents is shown in the following table:

Net Income Before Exemptions	Total Tax on 1945 Income	Total Tax on 1946 Income
$ 500	$ —	$ —
600	3	—
800	9	—
1,000	15	—
1,500	30	—
2,000	45	—
2,500	160	95
3,000	275	190
4,000	505	380
5,000	755	589
7,500	1,440	1,169
10,000	2,245	1,862
25,000	9,705	8,522
50,000	26,865	24,111
100,000	68,565	62,301
250,000	207,985	190,475
500,000	442,985	406,600
1,000,000	900,000	838,850

Corporation Income Tax.—Normal corporation income tax rates were left unchanged. Surtax rates on the first $25,000 of net earnings of corporations, making less than $50,000, were reduced from 10 to 6 per cent. On corporate net income above $50,000, surtax rates were reduced from 16 to 14 per cent. The new rates on corporations apply to income received in 1946 and are payable in 1947.

Excess Profits Tax.—The excess profits tax was repealed as of Jan. 1, 1946 after which date corporate income is subject only to normal tax and surtax. However, unused excess profits credit for 1946 may be carried back to reduce excess profits taxes for 1944 and 1945. The object of this provision was to allow wartime earnings to be applied to reconversion expenses.

Capital Stock Tax.—The capital stock tax and the declared-value excess profits were repealed as of June 30, 1945.

Social Security Tax.—Other provisions of the law froze payroll taxes for old-age retirement at the existing rate of 1 per cent on employers and 1 per cent on employees.

Automobiles and Motorboats.—The "use" tax on automobiles and motorboats was repealed as of July 1, 1946.

UNSETTLED ISSUES

In enacting the Revenue Act of 1945, Congress made it clear that no further tax legislation affecting 1946 incomes, either individual or corporate, might be expected. However, a number of unsettled problems and contested issues are expected to become objects of Congressional study in 1946, with the prospect that further tax legislation will be enacted to apply in 1947. Some of the objectives of such legislation will be relatively minor changes in existing laws such as lowered rates on individual incomes if warranted by declining revenue needs.

Other objectives will be those concerned with general economic reforms to which it is believed tax measures may contribute. Among such proposals are those designed to encourage expenditures for business expansion and which would put a penalty upon the accumulation of undistributed profits. Other proposals for further consideration have been to abolish taxes on individual incomes under $3,000 and to repeal all Federal excise taxes in order to increase consumer buying power.

Among the most controversial of pending issues is that of taxing currently untaxed-non-profit organizations of which the most important are the labor unions and the farm cooperatives. A Treasury study of non-taxed organizations reporting income for 1943 was made public late in 1945 and showed that in 1943 there were 86,784 such non-taxed organizations with reported gross incomes of $6,159,000,000. Of this income $4,034,000,000 was from business activities which were in many instances similar to those carried on by competing firms that did pay taxes. Most important of these activities were those carried on by the farm cooperatives which, under existing laws, are not taxed on the sums which they pay out as patronage dividends.

Mutual savings banks, mutual insurance companies, building and loan associations, and similar organizations reported total income of $1,085,000,000, mainly from business activities and investments.

Other non-profit groups reporting were consumer cooperatives, educational and charitable institutions, and trade associations.

The current issue over taxing the non-taxable organizations has largely been precipitated by the rapid expansion of the cooperative movement into fields in which the cooperatives are in direct competition with businesses which are subject to ordinary corporation taxes. The expanding business activities and increasing investments of the labor union have also contributed to the demand for further Congressional investigation.

IMPORTANCE OF INCOME AND PROFITS TAXES

Total budgetary receipts of the United States Government for the fiscal year 1945 amounted to $47,700,000,000 as compared with $45,400,000,000 in 1944, an increase of $2,300,000,000. The major importance of income and profits taxes is shown by the fact that receipts from these sources amounted to $33,000,000,000 in 1944 and to $35,000,000,000 in 1945. The growth in yield of income and profits taxes over a ten-year period is shown in the following table:

INCOME AND PROFITS TAXES 1936-1945

(In Thousands of Dollars)

Fiscal Year	Total Income and Profits Taxes	Individual	Corporation Income and Excess Profits	Miscellaneous Profits Taxes
1936	1,427,446	674,416	738,521	14,509
1937	2,179,828	1,091,741	1,056,909	31,178
1938	2,629,030	1,286,312	1,299,932	42,786
1939	2,185,114	1,028,834	1,122,541	33,740
1940	2,129,609	982,017	1,120,582	27,010
1941	3,471,124	1,417,655	2,016,297	37,172
1942	8,006,884	3,262,800	4,687,462	56,621
1943	16,298,888	6,629,932	9,584,715	84,241
1944	33,027,802	18,261,005	14,629,344	137,452
1945	35,061,526	19,034,313	15,883,235	143,978

LAND AND PROPERTY TAXES

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GENERAL

The increasing importance of real estate tax reduction is emphasized by the addition of seven new state committees or commissions appointed to study tax revision (Alabama, Nebraska, New Hampshire, New Jersey, Oklahoma, Oregon, and Vermont).

The New York State Commission on Municipal Revenues and Real Estate Tax Reduction filed its first report in March, 1945, and will report to the next Legislature on an extensive revision of state assistance designed to promote real estate tax reduction.

The termination of the war focussed the legislative spot-light on post-war tax plans, veterans' relief and exemptions, and expanding tax-supported state and municipal functions.

As a result of the Supreme Court decision upholding Minnesota in taxing the entire airplane fleet of Northwest Airlines (Northwest Airlines *v.* Minnesota, 322 U. S. 292, the Civil Aeronautics Board in a report to Congress (April 10, 1945) recommends state taxation of airplane fleets on an apportionment-between-states basis. Indiana permitted cities of 300,000 to create Departments of Redevelopment to improve blighted areas, with special taxing powers (C. 276, L. 1945). North Dakota will vote on the establishment of a Post-War Rehabilitation Reserve Fund to be supported by a two-mill levy for ten years (S.C.R. No. 9, L. 1945). Michigan voters will pass upon a constitutional amendment permitting a 15-year increase in tax limitation, from 1½ per cent to 3 per cent upon vote of a majority of qualified property owners for acquiring real estate or erecting or improving public works (Sen. Jt. Res. A, 1945).

LEVIES

Ohio's *ad valorem* tax on hemp and other fibers in original containers was invalidated by the United States Supreme Court (Hooven & Allison Company *v.* Evatt, 89 L. E. 852). Michigan has imposed a two-mill tax per 100 pounds of grain held by dealers, processors, or warehousemen to be collected in the same manner as the general property tax (P.A. 33, L. 1945).

Colorado authorized its counties, cities, and towns to levy a one-mill tax for a post-war improvement fund (H.B. 530, L. 1945); Kansas authorized cities of the second class to levy a one-mill tax for municipal airports and aviation purposes (C. 6, L. 1945); North Dakota, a three-mill tax for cities for airport purposes (S.B. 155, L. 1945); and Delaware removed levies for airport improvement from its tax limitations (S.B. 162, L. 1945).

Illinois added a two-mill tax in park districts for five years, and thereafter one-mill, to be used for repairing drives, parks, swimming pools, and community centers (S. B. 8, L. 1945). North Dakota authorized a one-mill tax for counties to advertise their resources and to promote industrial development (S. B. 177, L. 1945).

Oklahoma authorized a one-mill tax to provide loans to war veterans for the acquisition of farms and homes (C. 403, L. 1945).

Wyoming will permit its electors to vote a two-mill tax for vocational and adult education (H.B. 83, L. 1945).

EXEMPTIONS

Following a movement begun in 1944 to remove constitutional and legislative barriers to taxation of federally owned property in cases where Congress has waived its immunity, seven states adopted legislation permitting taxation of federally owned property (Connecticut, Maine, Maryland, New Hampshire, Pennsylvania, Utah, West Virginia), and Washington will vote on a constitutional amendment to accomplish the same end (H.J.R. 9, L. 1945). New Jersey authorized the receipt of such taxes in lieu of payments from the Federal Government (C. 66, L. 1945).

The United States Supreme Court has affirmed the exemption from taxation of real estate purchased by the United States and devoted to low cost housing (Boyle, Deputy Treasurer, *et al v.* United States of America and Federal Housing Authority, 89 L. E. 270).

Veterans' exemptions were extended and enlarged in several states. Connecticut exempted veterans from all interest and other delinquent charges on property taxes during their term of service (C. 247, L. 1945), Georgia, from Jan. 1, 1941 to six months after discharge or war termination (H.B. 121, L. 1945), and South Dakota for six months after discharge (S.B. 209,

L. 1945). Idaho exempted veterans' property for the war period and six months after discharge.

Arkansas enlarged and liberalized its homestead exemption from $1,000 to $2,000 (H.B. 318, Act 205, L. 1945).

Social and literary associations affiliated with a college or university were accorded full exemption in Alabama (H.B. 103, L. 1945), while Florida clarified its education and charitable exemption to make such institutions subject to assessments for sidewalks, curbing, street paving, or other local improvements (H.B. 1005, L. 1945).

South Carolina extended to June 11, 1946 its exemption of property of cooperatives (H.B. 161, L. 1945), and North Carolina broadened its exemption accorded to American Legion Posts to include any veterans' organization (H.B. 924, L. 1945).

ASSESSMENTS

Illinois now requires full, fair cash value assessments and equalization by the Department of Revenue, and the establishing through analysis of property transfers and appraisals of an assessed value, which shall be the full, fair cash value of the property (S.B. 229, L. 1945).

Taking account of recent hurricane damage, New Jersey now provides for the revaluation of property where value has been depreciated by storm, fire, or other casualty after Oct. 1 and before Jan. 1 (C. 260, L. 1945).

ADMINISTRATION

Assessors in Massachusetts may no longer hold the office of collector of taxes (C. 136, L. 1945). South Dakota authorized the appointment of a Delinquent Tax Collector to be paid by commission not exceeding 10 per cent of the taxes collected (S. B. 268, L. 1945).

Oklahoma substantially revised its tax collection and return calendar (S. B. 122, L. 1945), while Pennsylvania made many changes in its tax lien dates, tax sale redemption provisions, and installment payments of delinquent taxes (Acts 24, 263, 386, 394 and 429, L. 1945).

Vermont omitted the oath from tax returns while attaching the penalties of perjury to false statements contained therein (S.B. 71, Laws of 1945).

CORPORATION AND BANK TAXES

By Chester B. Pond

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FEDERAL TAXATION

Federal tax laws enacted in July and November applied generally to taxable years beginning after Dec. 31, 1945. With the end of hostilities in Europe came the problem of lightening the wartime tax burden on industry which led to enactment of the Tax Adjustment Act of 1945 (July). This law was devoted entirely to corporation taxation. One of its provisions was the increase of specific exemption for excess profits taxes from $10,000 to $25,000. The increase applies to taxable years beginning after Dec. 31, 1945 and is prorated for fiscal years beginning in 1945 and ending in 1946. This same act also authorized redemption of excess profits tax refund bonds after Jan. 1, 1945.

In November, President Truman signed the Revenue Act of 1945, giving individual and corporate taxpayers a cut of $5,920,000,000 for 1946, the first reduction in 16 years. Like the earlier Tax Adjustment Act, the November law was designed to speed industrial reconversion as well as lighten wartime levies on corporate and individual taxpayers. Corporations were benefited by the repeal of the excess profits tax and a reduction from 40 per cent to 38 per cent for combined normal tax and surtax as well as by a slight reduction in normal tax for incomes over $50,000. The total cut in tax receipts from corporations under the new law is estimated at $3,136,000,000.

STATE CORPORATION TAXES

General.—Several states appointed legislative investigation commissions, which were usually assigned the task of exploring means of encouraging new industries and enterprises. Massachusetts, Rhode Island, and Pennsylvania concluded that they were losing in relative importance as industrial producers and that tax burdens on corporations must be relieved. The Pennsylvania and Massachusetts bodies suggested raising additional funds through sales taxes. A Virginia commission suggested higher revenues through moderate increases in tax rates, including individual and corporation income taxes and gross receipts taxes on public service corporations.

New Jersey.—The New Jersey Commission on Taxation of Intangible Property laid the groundwork for the new franchise tax for domestic and foreign corporations. The tax is in lieu of all other state, county, and local taxation upon or measured by intangible personal property used in business. It is a graduated mill tax on net worth and is allocated according to a formula which includes tangible property, gross receipts, and payrolls within and without the state.

Rhode Island amended the corporate excess profits tax law relating to assessment procedure. The tax is now due June 1, rather than July 1 and the 50¢ per $100 rate is continued through 1946.

North Carolina amended the franchise tax law by adding definitions of "corporation" and "doing business"; by including parent and subsidiary corporations in the provisions specifying inclusion in capital stock of indebtedness used as part of capital; by allowing as a credit any intangibles tax paid on bank deposits; and by providing that new corporations acquiring corporations whose tax has been paid will receive a corresponding credit in determining tax liability for the first year.

Pennsylvania amended its capital stock and franchise taxes by clarifying the provisions for the appraisal and valuation of capital stock of corporations; by including in the gross receipts (formerly gross receipts from sales, fees, and commissions), exclusive of rentals, royalties, interest and dividends allocated under special provisions, and by making special allocation provisions in the case of gross receipts from construction contracts.

Oregon designated the Corporation Commissioner, rather than the Secretary of State, as the recipient of fees and the officer with whom articles of incorporation are to be filed. When a merger agreement is presented, which increases the authorized capital of the surviving corporation, then a filing fee shall be paid. The minimum fee for filing merger agreements where there is no increase in total capitalization is $5.

Maine.—The Legislature provided that the Secretary of State shall certify to the State Tax Assessor the names of new corporations; that the State Tax Assessor shall notify corporations of a change in the amount of franchise tax due; that the State Tax Assessor shall replace the State Treasurer as receiver of the franchise tax and shall institute proceedings when taxes are in arrears for six months; and that the State Tax Assessor instead of the Secretary of State shall prepare a list of corporations which have paid the franchise tax.

Maryland limited to domestic building or homestead associations and credit unions the annual $10 franchise tax heretofore also imposed on all domestic corporations having no capital or stock.

Minnesota provided that, where capital stock is reduced, shares without par value shall be computed at their value at the time of filing the amendment, as shown by a verified statement of assets and liabilities, for the purpose of determining the fee for filing amendments to articles of incorporation.

Idaho added to its corporation tax

law a provision that nonprofit organizations must file a letter of certificate of exemption from Federal income taxes in order to be entitled to exemptions from the license tax

SPECIAL PROVISIONS FOR FOREIGN CORPORATIONS

A few of the states made special provisions for foreign corporations. Iowa provided that foreign corporations having a perpetual permit to transact business in the state must pay a fee of $1.10 for each $1,000 or fraction thereof for any increase of capital in the state. The Michigan Legislature passed a law stating that whenever a foreign corporation admitted to do business in the state increases the proportion of its authorized capital stock represented by property owned or used and business transacted in the state, it shall pay a fee upon each dollar of the increased proportion of its capital stock represented by its property owned or used and business transacted in the state. Florida provided that a domestic corporation which has been dissolved or a foreign corporation whose permit has been cancelled may, by filing reports and paying three years capital stock taxes, have its corporate entity or permit to do business in Florida restored. Florida also permitted corporations to be reinstated at the request of owners of a majority of the capital stock.

STATE BANK TAXATION

Vermont levied a tax on banks measured by net income at the rate of 2 per cent per annum, and repealed the former tax on banks of 4/20 of 1 per cent on the average amount of deposits. State chartered banks shall, and national banks may, file with the Commissioner of Taxes a stipulation binding themselves to pay an income tax at the rate of 4 per cent on all income accruing to residents of the state, as interest or depositors' dividends, upon a deposit in such bank.

New York State amended the Tax Law by providing for the taxation of savings banks under Article 9-B, imposing a 4½ per cent income tax on state banks, trust companies, and financial corporations. Savings banks were formerly taxed under Art. 9, Sec. 189, 0.6 per cent on surplus and undivided earnings. The minimum tax is the larger of $10 or 2 per cent of interest credited to depositors.

Massachusetts changed the date for making bank tax returns from the first ten days of January to March 15. The Commissioner of Corporations and Taxation is no longer required to make an annual report to the General Court on assessed incomes.

Maine provided that returns not under oath shall be made to the State Tax Assessor instead of the Bank Commissioner and that the State Tax Assessor, instead of the State Treasurer, shall notify the banks interested.

COURT DECISIONS

In the Lincoln National Life Insurance Company *v.* Read *et al.*, the United States Supreme Court ruled that the imposition upon a foreign corporation of conditions which are not required of domestic corporations within a state does not contravene the equal protection clause of the Fourteenth Amendment. The decision affirmed a judgment of the Ohio Supreme Court which upheld the validity of a 4 per cent license tax, measured by business done in the state, levied on foreign insurance companies as a condition precedent to securing a license to engage in business for the ensuing year. The court reiterated the long established rule that "a state may discriminate against foreign corporations by admitting them under more onerous conditions than it exacts from domestic companies."

In a Pennsylvania case involving a foreign corporation, the state Supreme Court held that "it is not necessary that the tax imposed upon foreign and domestic corporations be identical to avoid unconstitutional discrimination." The case involved was Commonwealth *v.* Monesseu Amusement Company. The issue was whether a foreign corporation must include in its capital stock for the purpose of computing franchise tax the shares of a domestic corporation which it owns and on which the capital stock tax, a property tax, had been paid. Overruling the Dauphin County Court, the state Supreme Court held that inclusion of such shares does not result in double taxation, since the franchise tax is not a property tax, nor was there held to exist discrimination against foreign corporations because they, unlike domestic corporations, are not granted the exemption which the Capital Stock Tax Act allows for shares held in another corporation.

Tangible personal property of a foreign insurance corporation doing business in Massachusetts may be exempt from the state tax provided a similar exemption is allowed by the state of incorporation to like corporations created by the laws of Massachusetts. The Massachusetts Appellate Tax Board held this to be so in the Great American Insurance Company *v.* Board of Assessors of the City of Boston.

Of interest to manufacturing corporations are two decisions involving *ad valorem* taxation of goods stored in original containers. The U. S. Supreme Court rendered a significant decision exempting from state *ad valorem* taxes fibers imported from foreign countries and from the Philippines and stored by the importer in their original containers for the purposes of future manufacturing. With three justices dissenting and one justice concurring in part, the Court reversed the decision of the Ohio State Supreme Court in Hoover and Allison Co. *v.* Evatt.

In a similar case, Washington Chocolate Co. *v.* King County, certiorari was denied by the U. S. Supreme Court. The Washington State Supreme Court had held in a five-to-four opinion that the Federal Constitution prohibits the state from levying a property tax on cocoa beans which were imported into the state from a foreign country and stored by the importer in their original containers, prior to use in manufacturing chocolate.

The Arkansas Supreme Court ruled in Henry H. Cross Co. *v.* Cook that the Arkansas income tax may be imposed on a post-war refund credit in the Federal excess profits tax. The court declared that such a refund can not be considered as part of the Federal tax so as to be deductible in computing the state tax.

ESTATE AND INHERITANCE TAXES

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UNITED STATES-UNITED KINGDOM, AND NORTHERN IRELAND DEATH TAX CONVENTION

On April 16, 1945, a Death Tax Convention between the United States and the United Kingdom of Great Britain and Northern Ireland was signed. This treaty is based on the principles underlying the United States-Canadian Death Tax Convention of June 8, 1944 and is designed to avoid double taxation and prevent fiscal evasion with respect to Federal estate taxes and British estate duties. The Convention was favorably reported by the Senate Foreign Relations Committee on July 3, 1945 and was assented to by the British Parliament. It will become effective upon exchange of instruments of ratification.

Significant developments in the field of reciprocal death taxation included an agreement reached by the Canadian provinces of Quebec and Ontario, based on the principles underlying the United States-Canadian Death Tax Convention, and enactment by six more states of provisions for the reciprocal exemption from death taxes of the intangible personal property of non-resident decedents.

STATE LEGISLATION

Arkansas.—Many important legislative changes were made in state death tax laws. Arkansas amended its estate tax law to provide for the imposition of a tax equal to the credit for state death taxes allowable against the basic Federal estate tax, and provided for the reciprocal exemption of intangibles of non-residents (Act 294).

California provided that the renunciation or waiver of an interest in the estate of a decedent, or an agreement for the distribution of such interest, shall not affect the computation of its inheritance tax, and provided for the exclusion from the estate of jointly owned property proved to have been owned originally by the surviving joint tenant (Ch. 1014).

Connecticut made provision for the apportionment of Federal and state estate taxes (Ch. 228).

Delaware shortened the period for transfers presumed to have been made in contemplation of death from two years to six months (H.B. 269), and amended its law in relation to the classification of beneficiaries, previously taxed property, and jointly owned property (H.B. 143).

Illinois provided for the reciprocal exemption of transfers to non-resident charities (S.B. 183), and for the payment of a tentative tax on contingent remainders (S.B. 415).

Indiana exempted from its inheritance tax the first $25,000 of the estate of members of the armed forces who died, not later than one year after the termination of the Second World War, of injuries received or diseases contracted in such war (Ch. 103).

Maine provided for the apportionment and proration of estate taxes (H.B. 422).

Maryland provided for the exemption from transfer tax of registered bonds of the United States in the name of a husband and wife passing to the surviving spouse (Ch. 742), enacted the uniform act on interstate arbitration of domiciliary disputes (Ch. 982) and the uniform act on interstate compromise of death taxes where there is a domiciliary dispute (Ch. 983).

Montana provided for the reciprocal exemption of intangibles of non-resident decedents (H.B. 22).

Nebraska provided for the reciprocal exemption of intangibles of non-resident decedents (Bill 201).

New Jersey provided for the compromise of inheritance taxes where there was reasonable doubt as to collectibility (Ch. 127).

New Mexico enacted an additional estate tax to absorb the credit for state death taxes allowed against the basic Federal estate tax (Ch. 66).

Oklahoma provided for the reciprocal exemption of intangibles of non-resident decedents (H.B. 419).

Pennsylvania provided for the compromise of claims and suits for the collection of inheritance taxes (Act 216).

South Dakota provided for the reciprocal exemption of intangibles of non-resident decedents (S.B. 59) and amended its law relating to transfers in contemplation of death (H.B. 160; S.B. 249).

Texas provided for the reciprocal exemption of intangibles of non-resident decedents (H.B. 175).

Vermont exempted transfers to foreign charitable organizations (S.B. 51).

Washington expanded the provisions relating to transfers intended to take effect at death (Ch. 184).

Wisconsin exempted transfers to any national organization of veterans of the armed forces of the United States or a subordinate unit (Ch. 622).

FEDERAL TAXATION

In Fidelity-Philadelphia Trust Co. *v.* Rothensies (324 U. S. 108), the United States Supreme Court held that the full value of a transfer in trust was includable in the gross estate of the grantor, for Federal estate tax purposes, as a transfer intended to take effect in possession or enjoyment at his death, where the trust agreement provided that, if the grantor survived the remaindermen, the remainder was to go as he appointed by will.

In Commissioner of Internal Revenue *v.* Estate of Field (324 U. S. 113), the Supreme Court held that the full value of the trust principal, at the date of the grantor's death, is includable in the gross estate, where the grantor had retained a reversionary interest.

In Goldstone *v.* United States (89 Law. ed. Advance Opinions 1253), the Supreme Court held that the total amount payable under an annuity contract and life insurance policy purchased by the decedent is includable in his gross estate, as a transfer intended to take effect in possession or enjoyment at his death, where the beneficiary of the policy had legal incidents of ownership but such incidents were to vest in the decedent if he survived the beneficiary.

In Fernandez *v.* Wiener, decided on Dec. 10, 1945, the Supreme Court sustained the constitutionality of the provisions of section 811(e) of the Internal Revenue Code, added by the Revenue Act of 1942, under which the Commissioner of Internal Revenue had included in the gross estate the entire value of property held as community property by the decedent and his wife under the laws of Louisiana.

In United States *v.* Rompel, decided by the Supreme Court on the same day, the Court reached a similar conclusion with respect to property held as community property under the laws of Texas.

In City Bank Farmers Trust Co. *v.* McGowan (323 U. S. 594), the Supreme Court held that, under the facts in such case, certain transfers directed to be made by order of a court out of property of an incompetent were transfers in contemplation of death made by such incompetent.

In Rosenman *v.* United States (323 U. S. 658), the Supreme Court held that payment of an estate tax before assessment is not such payment as sets the statute of limitations running against a claim for refund.

AUTOMOBILE TAXES

By Alma S. Russell
New York State Department of Taxation and Finance

WAR-PEACE TRANSITION FACTORS

With more liberal gasoline rations, motor fuel tax receipts for 1945 showed a substantial increase over those for 1944. Receipts in 31 states for the first four months of 1945 exceeded by $4,500,000 the 1944 collections for the same period. Federal petroleum taxes for the first four months in 1945 doubled those of 1944. With the end of gasoline rationing and the resumption of new car production, the entire automobile tax picture will be greatly changed.

In spite of agitation by individuals and organizations, the Federal automobile tax was again levied in July 1945, and each car owner was required to purchase a five dollar stamp. Efforts to abandon the automobile use tax, considered by many as unfair and unmanageable, are being continued. The war emergency excise taxes on motor vehicle fuels will remain until six months after the official end of the war.

CAR REGISTRATION LEGISLATION

With 46 of the 48 state legislatures meeting for either regular or special sessions, a great deal of new legislation was passed concerning automobiles. So many changes were made that only a few of the outstanding ones may be mentioned.

Perhaps one of the most interesting was a Wisconsin law which adopted a permanent system of car registration designed to eliminate some of the problems of the annual registration. The bill, originated by Acting Commissioner of Motor Vehicles, B. L.

Marcus, provides for 12 registration periods, each of which will start on the first day of the month and end on the last day of the twelfth month following. The first figure on the permanent license plate will denote the period for which issued, 1 denoting January, 2, February, and so on. Following this, will be a metal tab inserted annually to indicate the year for which the license is valid. Registration plates will be transferable from one car to another for the same owner but not from person to person. New registration lists will be issued every five years.

Maryland also passed a law providing that the Department of Motor Vehicles might, with the approval of the Governor, adopt a permanent registration system and design and adopt permanent registration plates in such form as to make the system effective.

Idaho provided that applicants for registration of motor vehicles must list, in addition to information previously required, the type of fuel used by the vehicle to be registered. Indiana created an entirely new law for the registration and licensing of motor vehicles. Included in this was provision for a new bureau to be known as the Bureau of Motor Vehicles.

Arkansas changed the registration period from Nov. 1-Dec. 31 to Jan. 1-Jan. 31. Oklahoma increased registration fees and reapportioned receipts.

Missouri and North Dakota made special provisions for the registration of vehicles. Missouri exempted from the Motor Carrier Act motor vehicles used in transporting farm machinery, produce, supplies, household goods, or other articles or commodities from farm to farm. North Dakota exempted from motor carrier taxes and regulations, vehicles used in the emergency transportation of perishable farm produce.

MOTOR RECIPROCITY

Reciprocity provisions were passed by several of the states. Maine reenacted until Dec. 31, 1947 sections of the law relating to reciprocity for non-resident vehicles and operators. In Minnesota, application for reciprocity was denied to truck-tractors, semi-trailers, trailers and combinations of such vehicles engaged in transporting property for hire. Maine broadened its provision relating to reciprocity in collecting excise taxes on motor trucks and trailers.

New Hampshire allowed the privilege of using the highways of the state without a license from the Commissioner, to a motor vehicle of a non-resident whose operator or chauffeur is licensed and has complied with the law respecting motor vehicle registration in the state or country in which the vehicle is registered. New Hampshire also provided that the highways of the state may be used by foreign motor vehicles registered in their home states or countries to the same degree as the home state or country allows like privileges to New Hampshire vehicles.

Maryland created a Reciprocity Commission composed of the Governor, Secretary of State, Chairman of the Public Service Commission, Superintendent of the State Policy Department, and Chairman of the Highway Commission. It is the duty of the Commission to confer with officials of other states for the purpose of establishing reciprocity arrangements and planning for the movement of motor vehicles between various states.

FINANCIAL RESPONSIBILITY

Maryland joined the states which require proof of financial responsibility by owners and operators of motor vehicles. The enforcement of this law in Maryland was placed under the jurisdiction of the State Police Department. The act, which requires proof of financial responsibility within 60 days after an accident, contains provisions relating to revocation of licenses and permits.

REGISTRATION AND TAX EXEMPTIONS

Two states exempted United States Government-owned and -operated vehicles from registration. In Oregon, an amendment to a 1941 statute included trailers and the exemption as to registration and license of government-owned and -operated motor vehicles. New Hampshire authorized the Commissioner of Motor Vehicles to prescribe special rules and regulations relative to registration of motor vehicles owned and operated by the Government of the United States, the state, or by any county, city, or town. The Commissioner may now issue permanent number plates for such vehicles and they will be considered to be properly registered and may be operated upon the highways of the state without further registration.

Wyoming, Ohio, and Maryland provided for tax exemption of motor fuel sold to the United States. Wyoming exempted from tax sales involving a single delivery exceeding 300 gallons to the United States. Ohio, in extending its excise tax on liquid fuel from March 31, 1945 to March 31, 1947, provided that no tax shall be imposed upon sales thereof, to the United States Government "except as may be permitted by it." Maryland authorized the Comptroller to promulgate regulations allowing the noninclusion of the tax in the price of gasoline sold by licensed dealers to the United States. South Dakota, on the other hand, amended the 1941 chapter of its laws by deleting the provision exempting from the excise tax, motor fuel used by the United States or its instrumentalities.

MOTOR FUEL TAXATION

Some changes were made in taxation of special kinds of fuel. A special excise tax of four cents on every gallon of aviation gasoline and aviation gasoline substitutes sold in Minnesota, was imposed. Refunds, as follows, were provided for taxes paid on aviation gasoline over and above 50,000 gallons received, stored, or withdrawn from storage and not sold or otherwise disposed of for others or intended for sale or other disposition to others:

50,000 to 100,000 gallons	1¢ per gallon
100,000 to 150,000 gallons	2¢ per gallon
150,000 to 200,000 gallons	3¢ per gallon
200,000 gallons and over	3½¢ per gallon

A few states made changes in gasoline tax rates. Of those that did, Oklahoma made the greatest increase, levying a temporary additional tax of two cents a gallon on gasoline, to be reported and collected as other taxes on gasoline are administered, and to expire Dec. 31, 1946. New York State extended for another year its two emergency taxes, each for one cent per gallon on gasoline and motor fuel. To match Federal aid to highway funds, Kansas imposed an additional tax of one cent per gallon on use, sale, or delivery of motor fuels when used to propel motor vehicles upon the highways of the state. The revenue from the tax is to be used to pay the principal and interest of warrants issued to obtain funds to match Federal highway aid funds for road construction.

Iowa increased its tax on liquified gas from three cents to four cents a gallon. Idaho raised its tax on motor fuel from five cents to six cents a gallon, for a period ending March 1, 1947. The law provided that one cent of the tax be placed in the highway fund and be used for matching Federal aid funds for highway construction and improvement.

SPECIAL JUNIOR LICENSES

Several changes were made in special junior licenses. New York State extended for another year the provision authorizing the holder of a junior operator's license to operate any registered motor vehicle for agricultural or dairy purposes with or without compensation, upon the public highways. Missouri extended to June 1, 1947, provisions authorizing the issuance of special chauffeur certificates to persons 16 and 17 years of age for the principal purpose of operating motor vehicles used for the transportation of farm products and supplies to or from market and for local delivery service. West Virginia increased the fee for an operator's license from 75¢ to one dollar for a four-year period. Oklahoma increased the fee for chauffeur's license, at the same time increasing the period from one to two years. Delaware inaugurated the issuance of a permanent operator's or chauffeur's license to such persons 21 years of age or over who have been licensed as an operator or chauffeur for three consecutive years. The fee is $5.00. Vermont, Michigan, and Maryland made changes in their laws governing revocation and suspension of licenses.

PERIODICAL PUBLICATIONS

American Economic Review
Northwestern Univ., Evanston, Ill.

Annals, The
American Academy of Political and Social Science, 3457 Walnut Street, Philadelphia.

Business Week
330 West 42nd Street, New York City.

Commercial and Financial Chronicle
25 Spruce Street, New York City.

Journal of Political Economy
5750 Ellis Ave., Chicago.

Nation's Business
Chamber of Commerce of the United States, 1615 H St., N.W., Washington, D. C.

Tax Administrators News
1313 E. 60th St., Chicago, Ill.

Tax Digest
15 East 26th Street, New York City.

Tax Magazine
350 Fifth Ave., New York City.

Tax Policy
257 Fourth Ave., New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN ACADEMY OF POLITICAL AND SOCIAL SCIENCE, 3457 Walnut Street, Philadelphia.

AMERICAN TAXPAYERS' LEAGUE, Munsey Bldg., Washington, D. C.

FEDERATION OF TAX ADMINISTRATORS, 1313 E. 60th St., Chicago, Ill.

INSTITUTE OF LOCAL AND STATE GOVERNMENT, University of Pennsylvania, Philadelphia.

NATIONAL ASSN. OF ASSESSING OFFICERS, 1313 E. 60th St., Chicago, Ill.

NATIONAL HIGHWAYS ASSN., Bass River, Cape Cod, Mass.

NEW ENGLAND STATE TAX OFFICIALS ASSOCIATION, Room 236, State House, Boston, Mass.

RESEARCH INSTITUTE OF AMERICA, INC., THE, 292 Madison Ave., New York City.

TAX INSTITUTE, 257 Fourth Ave., New York City.

DIVISION VIII

PUBLIC RESOURCES AND UTILITIES

FEDERAL SURVEYS AND MAPS

By K. T. Adams
Commander, U. S. N.; Chief, Division of Photogrammetry,
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GENERAL

During the first half of 1945, all Federal mapping and surveying agencies devoted most of their efforts to mapping foreign areas for the Armed Forces. With the termination of the war, these agencies made plans to return to their normal peacetime activities. The global nature of the war has made the average individual more map conscious than ever before. This increased familiarity has caused the public to realize that maps, charts, and air photographs are just as indispensable for intelligent planning in peace as in war. The truth of this statement is verified by the increased requests for maps and charts from numerous national, state, and local governments. Many wartime security restrictions concerning the distribution of maps and aerial photographs have been removed.

SURVEYING AND MAPPING SOCIETIES

The American Congress on Surveying and Mapping was organized in 1941, and had its last annual meeting in June, 1945. The Congress is a non-profit organization dedicated to the advancement of surveying and mapping in the Western Hemisphere by promoting the use of maps and encouraging all basic mapping programs. Its official journal is *Surveying and Mapping* which is published quarterly for distribution to members of the Congress. It is the only publication in this country that covers the entire surveying and mapping field.

The American Society of Photogrammetry was organized in 1934. It is a non-profit organization dedicated to the advancement of photogrammetry, and to act as a clearing house for the distribution of information pertaining to the science. Its annual meeting is held in Washington, D. C. in January of each year. The Society publishes periodicals and books dealing with the use of air and ground photographs for surveying and mapping purposes. Its official journal *Photogrammetric Engineering* is published quarterly. The Society published in December, 1944 a *Manual of Photogrammetry* which is used both as a text and reference book in the field.

SURVEYING AND MAPPING AGENCIES

Federal mapping agencies may be classified as follows: (1) agencies whose chief functions are field surveying and map compiling, the results of which are used by other agencies and for the general benefit of the nation; (2) agencies which survey and compile specific maps needed by them to carry out their functions properly; (3) agencies which meet their special mapping needs by compiling maps from existing data without making any field surveys.

The Geological Survey makes field surveys and publishes geologic maps, primarily for its own use, and topographic quadrangle maps which are generally used by all agencies and the public and form part of the standard map of the country. The Coast and Geodetic Survey establishes the basic horizontal and vertical control throughout the country and its possessions, surveys the coasts and adjoining waters and publishes nautical charts of them, and compiles and publishes aeronautical charts. The Corps of Engineers makes field surveys and publishes tactical and other maps primarily for Army use. The Hydrographic Office makes coastal and hydrographic surveys in some foreign areas and compiles and publishes nautical charts of all foreign waters. The General Land Office surveys and sub-divides the public lands. The Soil Survey makes field surveys and publishes soil maps and bulletins connected with land use. The Forest Service makes field surveys and publishes maps of national forests, primarily for its own administrative use. The Division of Geography and Cartography of the Department of State, the International Boundary Commissions, and the Division of Maps of the Library of Congress, all occasionally compile maps for special purposes.

A Map Information Office is maintained in the Geological Survey, which serves as a central clearing house to furnish to the various government agencies and to the public, information relative to surveys, existing maps, and air photographs.

The Bureau of the Budget coordinates the activities of all Federal surveying and mapping activities, thus eliminating unnecessary duplication of effort and creating an over-all efficiency of operations. The Bureau acts as a clearing house for the dissemination of knowledge of new methods and instruments, and encourages the adoption of the most efficient and economic methods.

The mapping accomplishments during 1945 are reported under the various department and agency headings.

WAR DEPARTMENT

The Corps of Engineers is responsible for all maps and surveys needed by the War Department, excluding the Army Air Forces. Maps for the military forces are normally produced in the United States by the Army Map Service, and overseas by the topographic troops of the Corps of Engineers. Since certain details of the mapping activities of the War Department have been omitted from THE AMERICAN YEAR BOOK for the war years, this report concerns the mapping activities during the war rather than being restricted to the year 1945. The huge demand for maps by fighting forces during the period of hostilities was met by close cooperation among all map-producing agencies. In the European theater, mapping efforts were closely coordinated with those of our allies. There was no area in which American or Allied troops engaged with the enemy, or anticipated engagements with the enemy, that was not covered by maps prepared from aerial photographs or from the best basic material available.

The Army Map Service programmed all foreign maps needed for military operations. About 30,000 new and revised maps were produced, including 25,329 by the Army Map Service itself, 1,544 by other government agencies, and 3,127 by commercial contactors. The total map production of 450,000,000 copies was so large that about two-thirds of all the reproduction work was done by commercial lithographic firms. In addition to producing maps, the Army Map Service supplied field topographic units with control data and other source material, as well as technical bulletins on new and improved map compilation techniques. The War Department Map Library, which is maintained at the Army Map Service, increased from an insignificant quantity of maps in 1941 to what is probably one of the largest map collections in the world in 1945.

The Aeronautical Chart Service of the Army Air Forces is responsible for the production, acquisition and supply of all maps, charts and related publications used by the Army Air Forces.

Through its own facilities and through the facilities of other Federal agencies and commercial companies, 6,123 charts and related publications were maintained. More than 46,000,000 copies of charts and related publications were printed and supplied to Army Air Forces activities throughout the world. The chart series involved in the above maintenance and supply are: Target charts at various scales, approach charts at scale 1:250,000, pilotage charts at scales 1:500,000 and 1:1,000,000, flight charts at scale 1:1,000,000, radar charts at scale 1:1,000,000, long range air navigation charts at scale 1:3,000,000, planning charts at scale 1:5,000,000, and Loran and other special charts at various scales.

Trimetrogon photographs of 3,312,000 square miles of area were taken during the last year, bringing the total coverage to approximately 14,396,000 square miles. These are compiled at comparatively small scales to furnish topographic information for aeronautical charts. Through the facilities of the Aeronautical Chart Service and those of the Geological Survey, more than 3,721,000 square miles of planimetry were compiled during the year, bringing the total to 11,253,000 square miles. The Army Air Forces determined 598 new astronomic positions for use in photogrammetric compilation, and in addition 565 previously established astronomic positions were recovered and identified.

The civil mapping activities of the Corps of Engineers, the Lake Survey, and the Mississippi River Commission (see THE AMERICAN YEAR BOOK, 1941, p. 249) were held to a minimum because of the urgent military mapping requirements.

HYDROGRAPHIC OFFICE OF THE NAVY DEPARTMENT

The Hydrographic Office provides world-wide coverage of foreign nautical and aeronautical charts and allied publications for the use of mariners and aviators. The information for these charts and publications originates from the leading maritime nations of the world, from Navy hydrographic and aerial photographic surveys, from reports submitted by Navy and merchant ships, from consular agents of the State Department located in the scattered ports of the world, and from numerous other sources.

During 1945 the Hydrographic Office continued the vital work of furnishing charts to naval and merchant vessels and air services for their worldwide operations. In peacetime the Navy makes hydrographic and aerial photographic surveys of foreign countries, principally in Central and South America. During the recent war this work was greatly increased, particularly in combat areas where surveys are essential to the successful prosecution of the war. Compiled in 1945 were over 650 special approach and bombardment charts, and hundreds of air approach, target and loran charts (loran charts are used for radar navigation). The majority of the special charts mentioned were prepared for amphibious and air operations in the Pacific theater of war.

Hydrographic survey operations were carried out in strategic areas following landing operations, and in some instances prior to amphibious assaults. These fleet survey vessels were equipped with cameras, presses, and other reproduction facilities in order to expedite the printing and delivery of the resulting charts in a minimum of time.

To provide the Navy with nautical and aeronautical charts and allied publications necessary for war operations, the Hydrographic office has on issue 5,200 nautical and 450 aeronautical charts of the world, besides hundreds of other special charts which in 1945 involved the printing of nearly 33,000,000 copies. These charts are constantly being revised and reprinted as later and better information becomes available.

DEPARTMENT OF THE INTERIOR

The Geological Survey makes field and photogrammetric surveys, and publishes geologic and topographic maps. The latter are part of the standard topographic map of the United States and are for sale as quadrangle sheets. About half of these are published as 15-minute quadrangles on the 1:62,500 scale with most of the remainder being published as 7.5-minute quadrangles on either 1:31,680, or 1:24,000 scale. The topographic maps also are the bases for the geologic maps which are included in the geologic reports. Maps published during the year included 241 new topographic quadrangles, 401 reprints of old topographic maps, 12 special maps, and 44 preliminary geologic maps.

New topographic surveys covering 8,576 square miles were completed in 23 states, and 5,406 square miles of resurveys were completed in 18 states. The largest areas of new topographic mapping were located in Missouri, Louisiana, California, Illinois, and Maine. Planimetric maps of 1,638 square miles in Wisconsin were compiled from air photographs for publication prior to the addition of contours.

All planimetric maps were office-compiled by photogrammetric instruments, principally multiplex. Photogrammetric methods were also used for the compilation of original map manuscripts of a considerable part of the topographic maps.

Control surveys for this mapping consisted of 301 occupied triangulation stations, 1,479 linear miles of transit traverse, and 2,634 linear miles of leveling, all of third-order accuracy or higher. Results of horizontal and vertical control surveys for various quadrangle maps were issued in lithographic lists.

Air photographs covering 48,800 square miles were procured, or contracted for during the year for use in mapping.

New topographic maps of foreign areas, totaling 35,700 square miles, were compiled from air photographs for the War Department.

Progress continued on the Millionth Scale Map of the World. Compilation and drafting were carried forward on sheets of H-14, Austin; H-15. Mississippi Delta; I-17, Savannah; I-18, Hatteras; K-10, Mt. Shasta; K-17, Lake Erie; and L-10, Cascade Ranges.

Work progressed on the Transportation Map of the United States, scale 1:250,000, being prepared for the Public Roads Administration. Forty-one sheets were in the course of publication, while 14 sheets were published.

The Alaska Branch of the Geological Survey, in connection with the worldwide charting program of the U. S. Army Air Forces, compiled new terrain data from aerial photographs covering more than 2,000,000 square miles for a total to date of approximately 7,500,000 square miles. For the greater part, this involved only planimetric mapping, but 500- or 1,000-foot contours were added to 620,000 square miles of the more mountainous regions, where such data were lacking and where terrain clearance information was vitally needed for safe air navigation. The drafting of 132 charts of various types, for photolithographic reproduction, was also completed in connection with this program.

The Board on Geographical Names made a total of 7,067 decisions, of which 63 were on domestic names. Incidental to checking the names on map series of the Corps of Engineers, and editing manuscripts and maps of strategic studies for the armed forces, over 85,000 individual names were processed according to the policies of the Board. All names were checked against official sources, and all variant forms of each name were cross-referenced. Eleven gazetteers were compiled to accompany strategic studies. Directions for the treatment of geographical names were prepared for 19 areas in the Orient, and for five areas in Europe. Guides to Geographical Names were written for central Asia and Korea.

The General Land Office, Office of Indian Affairs, National Park Service, and Fish and Wildlife Service continued their activities as previously described in THE AMERICAN YEAR BOOK, 1941 (p. 250).

DEPARTMENT OF AGRICULTURE

The Department acquired from 1926 to date, air photographs covering 2,944,661 square miles of area, of which about one-fourth is duplicate coverage, necessitated by obsolescence, cultural changes, flood damages, shifting of crop boundary outlines, etc. Owing to the requirements of the War and Navy Departments for trained air photographers and pilots, the Department's air photographic program has been greatly curtailed and only a comparatively small area was photographed during the year. Practically all the photographs are at a scale of approximately 1:20,000 and most of them are suitable for use in mapping.

The Field Service Branch (formerly the Agricultural Adjustment Agency) of the Production and Marketing Administration continued its air photographic activities as described in The American Year Book, 1944 (p. 289). Special projects for the War and Navy Departments included the preparation of photographic mosaics of several areas in Japan.

The Division of Soil Survey, Bureau of Plant Industry, Soils, and Agricultural Engineering issued during the year five detailed soil maps together with accompanying explanatory bulletins, bringing the total of such published surveys to 1,540. The new maps and reports were for the following areas: Macon County, Alabama, Tishomingo County, Mississippi, Big Horn Valley, Montana, Huntington County, Pennsylvania, and Kittitas County, Washington. Forty-one additional maps are being printed. Although field surveys by the Division were discontinued during the war, cooperating state agencies made field surveys during the year on approximately 1,000,000 acres, the results of which will be published on maps in the regular soil-map series. Special soil maps, from field surveys or compiled from existing data, were prepared in connection with the war-expanded production of crops.

The Forest Service during the past year, compiled and revised by photogrammetric methods, maps of Pacific areas assigned to it by the Navy Hydrographic Office. Practically all mapping personnel was engaged on work for the military agencies. No new mapping of forest areas was undertaken.

The Soil Conservation Service used its cartographic facilities in 1945 chiefly in preparing maps and charts for the War and Navy departments. In addition, field work for controlling soil-conservation surveys, was completed in Dakota County, Minnesota, Wibaux County, Montana, and Oneida County, Idaho. Several quadrangles, showing land capabilities, were published for Muskingum and Guernsey counties, Ohio. For the first time since 1941 the Soil Conservation Service awarded contracts for aerial photography totaling 55,000 square miles in 10 states.

DEPARTMENT OF COMMERCE

The Coast and Geodetic Survey in 1945 published 10 new nautical charts. In addition, 79 new editions, 716 new prints, and 516 reprints of existing charts were published. The total number of catalogued nautical charts, which are under constant revision and of which revised editions are frequently published, is 873, of which 163 are of Philippine waters. The latter group of charts was the only adequate one available to the armed forces for amphibious operations in the Philippines in 1945.

Hydrographic surveys were made covering 2,576 square miles, in which were 22,310 miles of soundings, mostly in the waters of Maine, Chesapeake Bay, and Alaska. Topographic surveys, using air photographs, were made of 911 square miles, in which there were 1,739 miles of shoreline, mostly in Maine, Maryland, Virginia, and Florida.

Control surveys were made as follows: First-order triangulation, 1,847 linear miles, covering 30,455 square miles of area; second-order triangulation, 930 linear miles, covering 11,239 square miles of area; second-order traverse, 61 miles; first-order levels 2,547 miles; second-order levels, 1,671 miles; 11 first-order bases measured totaling 52 miles; and 16 astronomic stations occupied. Reconnaissance for future triangulation extended along 3,117 miles of arc covering 40,320 square miles of area. During the year, 1,883 triangulation stations were located, and the elevations of 6,124 bench marks were determined in the United States and Alaska. A notable achievement in control surveys made during the year was the extension of the North American datum of 1927 to include the Aleutian Island group, thus bringing all triangulation in Alaska and the United States to a common datum.

The standard aeronautical charts of the United States and possessions, 134 in number, were maintained as to aeronautical data. Field surveys on 205 airports were completed. The production of 447 instrument approach and landing charts based on these and previous surveys was in process. This series of airport charts, of which 371 have been printed, is increasing in importance (see The American Year Book, 1940, p. 289, and 1941, p. 251).

Air photographs of 10,000 square miles, covering scattered areas along the Atlantic and Gulf coasts, were taken in collaboration with the U. S. Coast Guard. These photographs were used for nautical chart corrections and for the compilation of 86 planimetric maps. The total number of planimetric maps published to date is 804, with 254 awaiting publication. These maps were described in The American Year Book, 1940 (p. 289). The topographic mapping of strategic areas for the War Department was completed by the publication of the remaining 135 quadrangles (see The American Year Book, 1944, p. 290).

The Weather Bureau, Bureau of the Census, and Bureau of Foreign and Domestic Commerce compile and publish special-type maps (see The American Year Book, 1943, p. 296).

FEDERAL WORKS AGENCY

The Public Roads Administration, in cooperation with the State Highway departments, is conducting highway planning surveys throughout the country which will eventually provide a complete series of state and county maps showing the location of approximately 3,000,000 miles of rural roads and the character of culture served by them. The resulting state, county, and transportation maps have been described in previous editions of The American Year Book (1939, p. 276; 1940, p. 290; and 1941, p. 252). Only additions to these series are reported here (for those previously available, see The American Year Book, 1944, page 291, and prior issues).

County maps for one additional county were issued in 1945, and maps for 65 of the remaining 73 counties are in progress.

No new transportation maps were published in 1945 but 46 sheets in six states have been revised.

TENNESSEE VALLEY AUTHORITY

Owing to urgent military map requirements, the domestic mapping activities of the Tennessee Valley Authority during 1945 were held to the very minimum. The work was limited to the extension of ground control for future mapping activities in the Tennessee Valley. The status of completed mapping in the Valley is the same as previously reported (see The American Year Book, 1944, p. 291).

Final compilation and printing of maps requested by the War Department, covering areas of strategic importance in New York, Texas, and South Carolina, has progressed to the point where over half of the total number of quadrangle sheets have been published (see also The American Year Book, 1943, p. 297, and 1944, p. 291).

During the year the Authority's mapping efforts were directed principally toward the preparation of strategic and tactical maps of foreign areas for the War Department. The total mapping assignments in the European and Asiatic theaters have amounted to approximately 500,000 square miles. The types of mapping included were new stereo-photogrammetric compilations, and revisions based on aerial photographs. The publication scales were 1:25,000, 1:50,-

000, and 1:100,000. Countries included in this mapping program were France, Germany, Austria, Yugoslavia, Holland, Poland, Czechoslovakia, and Hungary, also Formosa and the main Japanese Islands. Emphasis has been shifted to occupational mapping needs since the termination of hostilities.

The property surveys, cadastral maps, and navigation charts made by the Authority were described in THE AMERICAN YEAR BOOK, 1943 (p. 297).

STATE GEOLOGICAL SURVEYS

BY WILSON M. LAIRD
STATE GEOLOGIST, NORTH DAKOTA

GENERAL

In most states the State Geological Survey or its equivalent bureau, usually called a State Bureau of Mines, has been long established. As a result of this long continuity of endeavor most state surveys have built up a considerable fund of information that is naturally most useful to the inhabitants of that particular state or persons interested in the resources of that state.

During the years of the depression, many state surveys were curtailed drastically or went out of business altogether. In many of the latter cases the departments of geology at the state universities carried on their work as best they could. At the present time most state surveys are operating on budgets which are, for the most part, considerably larger than they have had for some time.

These increased appropriations are naturally the result of better times in all the states. With the increased revenues the state legislatures have realized that the time is now here to take adequate stock of their natural resources and have turned to the agency in their state most likely to have the information—the State Geological Survey.

Along with the increased appropriations has gone the corollary of increased prices for equipment the surveys must purchase as well as long-deserved-but-not-granted pay increases to Survey personnel. With greater resources to pay salaries the surveys can hold their more competent men and attract other competent help which was formerly almost impossible. This has naturally helped the tenor of the scientific work done by the State Surveys.

REPORTS AND OTHER PUBLICATIONS

Most of the state surveys issue reports in the forms of bulletins, reports of investigations, and other similar types of issues. Some of these reports are printed directly by the survey concerned while others are written by members of the survey and published in national scientific journals. In these latter cases the material which is printed as separates may be either directly purchased by the survey or reprinted in a form approved by the publication in which it was originally printed and the survey concerned. In this way material of interest to the states is brought out in a form which is considerably cheaper than direct printing. Some surveys issue these in the form of reprint series while others issue them as bulletins. In as much as printing costs have risen considerably since the war the surveys are interested in saving any money possible on publication costs.

Several of the surveys have been successful in issuing small lithoprinted and mimeographed periodicals which come out about once a month. These are printed with the idea of keeping the people of their constituency informed of progress in the mineral field. In these periodicals appear articles written by members of the State Surveys or by men in the mineral extractive fields themselves for the general reading public. They are written in a simple yet technically accurate style which will appeal to the lay reader.

Several of the State Surveys have been successful in helping promote Mineral Industry Conferences which bring together the men in the mineral extractive and processing industries and the scientific men of the state. Thus the men of the industry meet the men of the Survey and the exchange of ideas is mutually helpful. These conferences also stimulate interest in the work of the State Survey which can assist the state bureau when the legislature of that state considers the budget of the Survey.

FEDERAL-STATE COOPERATION

At the present time there is a great deal of cooperation with agencies of the Federal government on the part of the State Surveys. Particularly is this true in the Missouri Basin states where there is at present a big investigative program in connection with the proposed development of that Basin. The representatives of the Federal Government naturally come to the State Surveys and ask for assistance in compiling information on the mineral resources of the region. A great deal of interest has been developed in connection with the large proposed construction projects, particularly dams and construction materials, especially sand and gravel. In some cases it has been found that this information has been sadly neglected by all governmental agencies both state and Federal. This is a field which it is hoped will be worked on more intensely by all agencies concerned in construction.

During the war and continuing on an increased basis, the State Surveys have cooperated with the United States Geological Survey in many types of endeavor. The main fields in which the states cooperate with the Federal Survey are geologic work, stream gaging, ground-water investigations, and topographic mapping. Many of the states have been cooperating for years with this government agency while others have come into cooperation only recently.

This cooperation is usually on a 50-50 financial basis although it is not always so. In some states, the cooperating parties each assigned a man to work on a certain project under a form of informal collaboration. In most cooperations either party has been free to publish the results of the cooperative work. In some cases, the Federal Government, having greater resources, prints the final report.

The ground water work of the State Surveys is increasing tremendously as the citizens of the states realize more and more the importance of this little-noticed natural resource. Many of the states, through their State Geological Survey or other state agency, are cooperating with the United States Geological Survey in this work while others are doing all their own work without any Federal cooperation. Undoubtedly, this type of work will continue to increase, especially in the arid and semi-arid states of the West and Midwest, as well as in the more humid parts of the country, particularly near large industrial areas securing their water in whole or in part from underground supplies. At the present time there is great interest in the ground water resources of the states in the Missouri Basin in view of the tremendous changes which will take place there in ground water levels after the water is impounded behind some of the large proposed dams.

ALABAMA

Organization.—Geological Survey of Alabama, University, Dr. Walter B. Jones, State Geologist.

Basic and Economic Geology.—*Projects:* Oil and gas well logs; Coosa Coal field; Red iron ore of northeastern Alabama; Shales of Alabama. *Publications:* Well Logs of Alabama 1940-45 (*Bull. 27*); Shales and Fire Clays of Alabama (*Bull.* 55).

Water Resources.—*Projects:* Natural water losses of Alabama; Ground water of south Alabama. *Publications:* Ground water of the Cretaceous areas of Alabama (Spec. Rept. 18); Water losses from selected drainage basins in Alabama (*Bull. 56*).

Others.—*Publication:* Beetles of Alabama (Mon. 11).

ARIZONA

Organization.—Arizona Bureau of Mines, Tucson, Dr. T. G. Chapman, Director.

Basic and Economic Geology.—*Projects:* Geologic examination of mineral deposits; Compilation of map showing location of wells drilled for oil in Arizona; Coal for sponge iron manufacture; Relation of struction to ore deposits in central and western Arizona; Iron for sponge iron; Perlite deposits in Arizona.

Others.—*Projects:* Compilation of mineral production statistics for Arizona by state, counties and districts; History of mining in Yavapai Co.; History of the Vere (Jerome) district.

ARKANSAS

Organization.—Division of Geology, Little Rock, Harold B. Foxhall, Director.

Basic and Economic Geology.—*Projects:* Rock wool; Lignite resources of Arkansas; Barite deposits of Montgomery and Polk Counties.

Water Resources. — *Projects:* Ground water resources in the vicinity of El Dorado; Collection of basic data in 1945 surface water supply report.

Topographic and Planimetric Mapping.—*Projects:* Malvern quadrangle. *Publications:* Almond, Cave City, Jamestown, Mt. Pleasant, Olmstead, Salado, Sandtown, Sulphur Rock, Woodwon quadrangles.

CALIFORNIA

Organization.—Division of Mines, Dept. of Natural Resources, San Francisco, Walter W. Bradley, State Mineralogist.

Basic and Economic Geology.—*Projects:* Geology of the San Juan Bautista quadrangle; Iron resources of California; Quicksilver in San Benito and Fresno counties; Quicksilver in Knowville district; Limestone in California. *Publications:* California Journal of Mines and Geology for April, July, and October 1944.

Others.—*Projects:* Minerals of California; Miners and mineral resources of Riverside, Kern, Lake and San Benito counties. *Publications:* Statistics (*Bull. 128*); Economic mineral resources (*Bull. 130*).

CONNECTICUT

Organization. — State Geological and Natural History Survey, Hartford, Dr. E. L. Troxell, Superintendent.

Basic and Economic Geology.—*Projects:* Mapping garnet formations; mapping quartz formation; mapping loess deposits; Kaolin investigations; Tree census. *Publication:* Mosquitoes (Bull. in press).

FLORIDA

Organization.—Florida Geological Survey, Tallahassee, Dr. Herman Gunter, Director.

Basic and Economic Geology.—*Projects:* Micropaleontology; Geology and structure of Florida; Investigations and studies in stratigraphy and structure; Investigations of peat deposits with special reference to fuel value and uses in plastics. *Publications:* Florida geology and petroleum; Stratigraphic and paleontologic studies of wells in Florida, No. 4 (*Bull. 28L*); Geology of Florida with geologic map (*Bull. 29*).

Water Resources. — *Projects:* Ground water studies; Surface water, especially springs and lakes; Quality of water. *Publications:* Salt water encroachment in southern Florida.

GEORGIA

Organization. — Department of Mines, Mining and Geology, Atlanta, Garland Peyton, Director.

Basic and Economic Geology.—*Projects:* Regional and structural geology of Fort and Cohutta mountain areas as a basis for the economic study of the talc deposits; Large scale geologic map of northwest Georgia to be published with manuscripts on the geology, stratigraphy, and economic minerals; Coal exploratory project; Economic investigation of limonite and maganiferous ore deposits; Investigation of sillimanite; Study of the structure, size and composition of the marble deposits at Tate and Marble Hill; Geology, mineral resources and ground water resources of Twiggs, Wilkinson, Washington and Glascock counties; Continuing study of the subsurface stratigraphy of the Coastal Plain of Georgia. *Publication:* Sillimanite and massive kyanite in Georgia (*Bull. 51*).

Water Resources.—*Projects:* State wide ground water projects; statewide surface water study; State wide study of quality of water. *Publication:* Well records supplement to *Bull. 49*. (*Bull. 49A*).

Topographic and Planimetric Mapping.—*Projects:* Planimetric map of Tate marble area; Planimetric map of Murry Hill talc area; Topographic map of selected area of Elbert-Hart sillimanite areas.

IDAHO

Organization.—Idaho Bureau of Mines and Geology, Moscow, A. W. Fahrenwald, Director.

Basic and Economic Geology.—*Projects:* Coal; Sulfur and Phosphate rock. *Publications:* Geological Reconnaissance between Snake and Salmon Rivers north of Riggins, Id. (*Pamph. 73*); Geologic map of Idaho with accompanying text.

ILLINOIS

Organization. — State Geologcal Survey Division, State Department of Registration and Education, Urbana, Dr. M. M. Leighton, Chief.

Basic and Economic Geology.—*Projects:* Areal investigations and geologic mapping; Engineering geology reports on highway conditions, damsites, etc.; Pennsylvanian, Mississippian, Silurian, Ordovician, and Pleistocene stratigraphy; Micropaleontological studies; Paleobotany of the Pennsylvanian; Preparation of a bedrock contour map of the state; Geology and oil and gas resources of the Illinois basin; Secondary recovery of oil in Illinois; Studies of reservoir conditions in Illinois oil pools; Oil possibilities of the Maquoketa and "Trenton" formations in Illinois; Scouting of drilling wells and cooperation with Illinois Scout check; Mapping and study of Illinois coal resources; Lithological and botanical constitution of Illinois coals; Studies to determine the usefulness of coal spores as index fossils; Smokeless briquets from Illinois coal; Investigation of combustion behavior of Illinois coals to develop improved stoker fuels; Investigation of the suitability of low-sulfur Illinois coals for use in preparation of metallurgical coke; Chemical study of tars prepared from Illinois coals in commercial and pilot plant coking operations: The chemical constitution of Illinois coals; Proximate and ultimate analysis of Illinois coals; Fluorspar resources of southern Illinois; Utilization of fluorspar; Petrology of Illinois clays; Bonding clay properties; Surface clay resources of Illinois; Research on clay and clay products; Investigation of the physical properties of Illinois silicas; *Publications:* Annotated synopsis of Paleozoic fossil spores and definition of generic groups (R.I. 91); Corals from the Choteau and related formations of the Mississippian valley region (R.I. 97); Smaller foraminifera of the Porters Creek formation (Paleocene) of Illinois (R.I. 98); Developments in eastern interior basin in 1943 (Ill. Pet. 49); Oil and gas development in Illinois in 1943 (Ill. Pet. 50); Possibilities of production from lime formations given the acid test (Cir. 107); The structure diorama (Cir. 110); Factors controlling oil-well completions in the Illinois basin (Cir. 112); Unitizing the royalty interests (Cir. 114); Resaturate while repressuring (Cir. 118); Oil and gas drilling reports nos. 52-81 (mimeo.); Progress reports in subsurface studies of the Pennsylvanian system in the Illinois basin (R. I. 93); Domestic coke from Illinois coals—an experimental sole-heated oven (R. I. 99); Illinois clays and shales as mortar mix (R. I. 100); Bonding action of clays (R. I. 102); Some clay-water properties of certain clay minerals (R. I. 103); Fluorine compounds in organic synthesis (Cir. 109); Aromatic fluorine compounds (Cir. 115);

The meta monohalogenated benzotrifluorides (Cir. 116).

Water Resources. — *Projects:* Groundwater geology of industrial, urban and special areas; Electrical earth resistivity surveys for subsurface water-bearing sands; Geophysical logging of water wells; Cooperation with Illinois water well driller association. *Publications:* Developments in the applications of geophysics to ground water problems (Cir. 108); Geophysical logging of water wells in northeastern Illinois (Cir. 113).

Topographic and Planimetric Mapping.—*Projects:* Topographic mapping of Buckley, Chatsworth, Crete, Elmwood, Piper City, Ramsey, Vandalia, Wayne City, Woodhull quadrangles. *Publications:* Topographic quadrangles of Freeport, Kewanee, Milford, Mt. Carroll and St. Elmo.

Others.—*Projects:* Economic review of mineral industries; Atlas of Illinois resources. *Publications:* Oil and gas development maps of Clay City, Greenup, Reaches, Allendale; Illinois mineral industry in 1943 (R. I. 101); Industrial minerals produced in Illinois in 1943; Agstone used in Illinois in 1943 (Cir. 111); Architects contribute to Illinois development (Cir. 117).

INDIANA

Organization.—Division of Geology, Dept. of Conservation, Indianapolis 9, Dr. Charles Deiss, State Geologist.

Basic and Economic Geology.—*Projects:* Oil and gas conservation work; Drilling permits and other conservation work; Study of Indianaite and its uses. *Publication:* Oil and gas activity in Indiana in 1944.

Topographic and Planimetric Mapping. — *Publications:* Topographic quadrangles, Bicknell, Brooksburg, Carmi, Carlisle, Epsom, Fairbanks, Florence, Guilford, Hooven, Hymera, Lawrenceburg, Lyons, Merom, Oaktown, Patriot, Plainville, Rising, Sanborn, Vevay.

Others.—*Publication:* Indiana oil and gas well development 1937-1943.

IOWA

Organization.—Iowa Geological Survey, Iowa City, Dr. A. C. Trowbridge, Director and State Geologist.

Basic and Economic Geology.—*Projects:* Pleistocene history of the Mississippi; Stratigraphy of the upper Des Moines series; Geology of Floyd County; Subsurface geology of Iowa County; Subsurface geology of the Cambrian strata in Iowa; Lead and zinc deposits of Center Grove-Pikes Peak area; Agricultural limestone surveys of Adair, Adams, Madison, Page, Ringgold, Taylor and Union Counties.

Water Resources. — *Projects:* Ground water resources of Cerro Gordo County; Geology and ground water resources of Webster County; Structural and ground water conditions of Jordon sandstone; Geology and ground water resources of Cedar Rapids and vicinity; Mineral analysis of underground waters of Iowa; Surface water resources of Iowa for the period 1942-1944.

KANSAS

Organization. — State Geological Survey of Kansas, Lawrence, Dr. Raymond C. Moore, State Geologist and Director.

Basic and Economic Geology.—*Projects:* Stratigraphic correlation of the Pennsylvanian and Permian of the midcontinent based on fusulinids; A comparative study of Tertiary and Pleistocene volcanic ash; Geology and oil and gas resources of Crawford Co.; Collection of mineral statistics in cooperation with the U. S. Bureau of Mines; New mineral resources map of Kansas; Geologic cross sections in eastern Kansas; General stratigraphic and lithologic studies in eastern Kansas; Chemical analysis of Kansas rocks and minerals; The Cheyenne sandstone and adjacent formations in a part of Russell Co.; Oil and gas resources of Bourbon, Neosho, Chautauqua counties; Oil and gas developments in western Kansas during 1945; Oil and gas developments in eastern Kansas; Oil and gas resources of Miami County; Structural development of the Salina Basin; Subsurface rocks of Upper Cambrian and Lower Ordovician age in Kansas; Investigation of oil shales in Kansas; Collection of well samples, cores and logs; Coal resources of the Wabaunsee group; Compilation of maps showing stripped areas in southeastern Kansas coal fields; Compilation of information on coal reserves of Kansas; Clays of the Dakota formation of Kansas; Preliminary report on Kansas clays; Molding sand resources of Kansas; A study of flint gravel deposits in eastern Kansas; Tertiary quartzites in Kansas; Industrial uses of ceramic slag; A study of Pleistocene clays near McPherson for proposed roofing tile plant; Special tests and study of clays near Concordia for proposed brick and tile plant. *Publications:* Pennsylvanian Morrowan rocks and fusulinids of Kansas (*Bull. 52 Pt. 7*); Exploration for oil and gas in western Kansas during 1944 (*Bull. 56*); Oil and gas in eastern Kansas (*Bull. 57*); Stratigraphy of the Marmaton group (*Bull. 58*); The correlation of rocks of Simpson age in north central Kansas with the St. Peter sandstone and associated rocks in northwestern Missouri (*Bull. 60, Pt. 1*); Pennsylvania rocks and fusulinids of east Utah and northwest Colorado correlated with the Kansas section (*Bull. 60, Pt. 2*); Valley erosion since Pliocene "Algal limestone" deposition in central Kansas (*Bull. 60, Pt. 3*); Subsurface geologic cross section from Ford Co. to Wallace Co. (Cross sec. no. 1).

Water Resources.—*Projects:* Geology and ground water resources of "Equua" beds area, Kiowa County, Grant Haskell, Stevens, Seward, Scott, Pawnee, Edwards, Jewell, Republic, Stafford, Barton, Norton, Kingman, Rice counties; Ground water resources of Kansas City industrial area, lower Arkansas valley, Smoky Hill valley; Deep water supplies of southeastern Kansas; Geology and ground water resources of the Pawnee Valley, along the north fork of Solomon River; Quality of water in Elm Creek valley; New water supply for the City of Hutchinson; Observation well program. *Publications:* Geology and ground water resources of Thomas County, Kansas (*Bull. 59*).

Topographic and Planimetric Mapping. — *Projects:* Topographic mapping in Cherokee, Crawford, Labette, Neoshok, Allen, and Bourbon counties.

KENTUCKY

Organization.—State Department of Mines and Minerals, Lexington, Daniel J. Jones, State Geologist.

Basic and Economic Geology.—*Project:* Statewide subsurface study. *Publication:* Geology of the Jackson Purchase.

Water Resources.—*Project:* Louisville ground water study; Blue grass ground water study.

LOUISIANA

Organization.—Louisiana Geological Survey, Baton Rouge, Dr. John Huner, State Geologist.

Basic and Economic Geology.—*Projects:* Geology of Red River and DeSoto Parishes; Geology of Webster Parish; Geology of Allen and Beaureguard Parishes; Natural gas reserves of Louisiana.

Water Resources. — *Projects:* Ground water in the Colfax area; Ground water conditions of the Baton Rouge area with special reference to the shallow artesian sands of the industrial area; Preliminary report of electrical resistivity studies near Jennings and Colfax; Ground water resources of East Baton Rouge and West Baton Rouge Parishes. *Publication:* Ground water resources of Jeff Davis and Acadia Parishes.

Others.—*Publication:* Oil and gas map of Louisiana, 1945.

MAINE

Organization.—Maine Geological Survey, Orono, Dr. Joseph Trefethen, State Geologist.

Basic and Economic Geology.—*Projects:* Molybdenite; Limestone; Clays; Pegmatites. *Publication:* Katahdin pyrrhotite deposit (*Bull. 2*).

MARYLAND

Organization.—Department of Geology, Mines and Water Resources, Johns Hopkins Univ., Baltimore 18, Dr. Jos. T. Singewald, Jr., Director.

Basic and Economic Geology.—*Projects:* Geologic map of Montgomery County; Carroll and Frederick counties report; Paleontologic and petrographic study of Salisbury oil well cores; Core drilling of George Creek coal basin.

Water Resources. — *Projects:* Ground water resources of Baltimore region, Compilation of Maryland Stream Flow Records. *Publication:* Summary of records of surface waters of Maryland and the Potomac River Basin, 1892-1943 (*Bull. 1*).

Topographic and Planimetric Mapping.—*Projects:* Revision of Prince George Co. topographic map. *Publication:* Washington Co. topographic map.

MICHIGAN

Organization.—Geological Survey Division, Department of Conservation, Dr. R. A. Smith, State Geologist and Chief.

Basic and Economic Geology.—*Projects:* Surface geology of the Grant Traverse region; Mineral industries of Michigan; Geology of the Bass Island and Salina formations of southeastern Michigan and contiguous areas of Ontario and Ohio; Geology and mineral resources along the Pennsylvania Railroad; Monograph on the oil and gas fields of Michigan; Pleistocene map of the southern peninsula; Oil maps; Survey of iron ore districts of Iron River, Crystal Falls area, Merriman area, Michigamme Lake district; Survey of gold bearing belt of Marquette Co.; The gypsum formations of Michigan. *Publications:* Pre-historic Mackinac Island (Pub. 43 G. S. 36); Geology of the Mackinac Straits region and subsurface of the northern and southern peninsulas (Pub. 44 G. S. 37); The Niagara formation of Michigan (Pub. 45 G. S. 38); Strategic mineral investigations (Prog. Rept. 10); Geology of the Spruce River and Peshekee River areas (Prog. Rept. 11); Rocks and minerals of Michigan (Pub. 42 Rev.); Geology to Archeology (Mich. Cons. vol. 14, no. 3); Fishin' weather (Mich. Cons. vol. 14, no. 5); Clouds (Mich. Cons. vol. 14, no. 6); Maps (Mich. Cons. vol. 14, nos. 8 & 9); Douglass Houghton (Mich. Cons. vol. 14, no. 10).

Water Resources.—*Projects:* Special survey of ground water conditions and supplies of Great Lansing area; Benton Harbor; Battle Creek area; war industry areas; Surface water surveys of Michigan and lake level stabilization.

MINNESOTA

Organization.—Minnesota Geological Survey, Minneapolis, Dr. Frank F. Grout, Director.

Basic and Economic Geology.—*Projects:* Geology of the Duluth metropolitan area, Geology of Cook County; Geology of central Minnesota; Revision of the Geology of the Mesabi Range; Ilmenite exploration by drilling; Geology of Cuyuna Range; Aluminous clays.

Water Resources. — *Project:* Ground water resources of the northeast quarter of the State.

Topographic and Planimetric Mapping. — *Project:* Topographic mapping of the Stillwater quadrangle.

MISSISSIPPI

Organization. — Mississippi State Geological Survey, University, Dr. William C. Morse, Director and State Geologist.

Basic and Economic Geology.—*Projects:* Four projects on non-metallic minerals. *Publications:* Lee County mineral resources; Itawamba County mineral resources; Rock wool; Mineral wool.

Water Resources.—*Projects:* Two projects on ground water resources and stream gaging. *Publication:* Geology and ground water resources of the coastal area in Mississippi (*Bull. 60*).

MISSOURI

Organization.—Missouri Geological Survey and Water Resources, Rolla, Dr. Edward L. Clark, State Geologist and Director.

Basic and Economic Geology.—*Projects:* Geology of Fredericktown quadrangle; Barite deposits of Washington County; Mineral resources of Morgan County; The subsurface geology of the Gulf coast embayment area in southeastern Missouri; The agricultural limestone resources of Missouri; Magnetic anomalies in Franklin and Crawford Counties; The zinc carbonate deposits of south-central Missouri; The limestone and dolomite deposits of St. Louis Co.; The coal resources of Missouri; The occurrence of volcanic ash in western Missouri. *Publications:* Pyrites deposits of Missouri (Vol. 30, 2 ser.); Recent drilling in northwestern Missouri (R. I. No. 1); Bibliography of geology of Missouri (Vol. 31, 2 ser.).

Water Resources. — *Publication:* Large springs of Missouri (Vol. 29, 2 ser.).

Topographic and Planimetric Mapping. — *Projects:* Topographic maps of Bedford, Cureall, Couch, Sedalia, Sedalia West, Thayer, West Plains, Florida, Grandin, Van Buren, Boss quadrangles. Planimetric maps of Alberton, Boynton, Bucklin, Centerville, Chula, Galt, Lamoni, Lineville, Lucerne, Milan, Mount Ayer, Princeton, Winigan. *Publications:* Topographic maps of Barry, Centralia, Edgar Springs, Bellows Creek, Bolchow, Buckhart, Cassville, Doniphan, Aurora, Fristoe, Gerald, Hannibal, Humansville, Iconium, Ginn, Loury City, Mokane, Morrison, Ozark, Perry, Quincy, Salem, Stone Hill, Sweet Springs, Thornfield, Troy, Valhalla, Vandalia, Warrenton, Waynesville, Weableau.

Others. — *Publications:* Biennial Report of the State Geologist, 63 Gen'l. Assembly, 1945; Mineral resources map of Missouri.

MONTANA

Organization. — Montana State Bureau of Mines and Geology, Butte, Dr. Francis A. Thomson, Director.

Basic and Economic Geology.— *Projects:* Study of stratigraphy and oil production possibilities of Mississippian and Devonian rocks in Montana; Study of factors controlling deposition of Montana ore deposits in sedimentary rocks; Study of Hecla (Bryant) mining district; Compilation of information on placer mining and gold placers; Study of geology and ore deposits of Highland district; Study of non-metallic mineral deposits in Montana. *Publications:* Distribution of sedimentary rocks in Montana and northwestern Great Plains; Factors affecting chromite production in Montana; Mississippian and Devonian stratigraphy in Montana.

Water Resources.—*Projects:* General ground water study in progress.

Others.—*Projects:* Study of the mining problems of small mine operators and prospectors; Mineral dressing studies for the beneficiation of Montana ores.

NEBRASKA

Organization. — Conservation and Survey Division, Univ. of Nebraska, Lincoln, Dr. G. E. Condra, Director and State Geologist.

Basic and Economic Geology.— *Projects:* Subsurface stratigraphic studies; Surface stratigraphic studies; Bryozoan studies; Study of the oil fields of Richardson County; Study of the oil possibilities of the State; Study of the coal deposits as shown by test drilling; Compilation of data on the mineral resources of the state. *Publications:* Bicorbula, a new Permian bryozoa (*Journ. Paleo. 19,* no. 2); Geological calendar (*AAPG Bull. 29,* no. 7); Blancan as a time term in the central great plains (*Sci. 101,* no. 2620); Twenty-five years of study of the Quaternary in the U. S. S. R. (*Am. Jour. Sci. 243,* 1945).

Water Resources. — *Projects:* Ground water studies in Jefferson, Thayer, Fillmore, Polk and Platte counties; Permeability tests in the Platte River valley. *Publications:* Ground water in the Republican River basin in Nebraska (Neb. Water Res. Surv. Water Sup. Paper 1); Water bearing formations and ground water regions of Nebraska.

Others.—*Projects:* Study of mosses, lichens, algae; Study of the plant food for wildlife. *Publications:* Petroleum development in Nebraska in 1944; Land and water conservation problems of the Missouri River basin

(*Neb. Cons. Bull. 26*); Industrial Nebraska in outline (*Neb. Cons. Bull. 28*).

NEVADA

Organization.—Nevada State Bureau of Mines, Reno, Jay A. Carpenter, Director.

Basic and Economic Geology.—*Projects:* Bibliography of geologic literature and maps of Nevada; Geologic study of Goldacres mining district. *Publications:* Quicksilver deposits in Nevada (*Geol. & Mining Ser. 41*); The geology of the Groom district, Lincoln Co. (*Geol. & Mining Ser. 42*).

NEW HAMPSHIRE

Organization.—Mineral Resources Committee, New Hampshire State Planning and Development Commission, T. R. Meyers, Geologist.

Basic and Economic Geology.—*Projects:* Preliminary examinations of New Hampshire foundry sands, clay deposits and feldspar bearing sands.

Others.—*Project:* Surficial geologic map of New Hampshire. *Publications:* Geologic map in structure sections of the Bellows Falls Quadrangle; Geologic map in structure sections of the Mt. Washington Quadrangle; Geologic map in structure sections of the Plymouth Quadrangle.

NEW JERSEY

Organization.—Bureau of Geology and Topography, Trenton, Meredith E. Johnson, State Geologist.

Basic and Economic Geology.—*Projects:* Iron ore deposits of New Jersey; Investigation of sand samples for glass making; Thermal analysis of clays and shales. *Publications:* Mineral resources of New Jersey in war and peace; The mineral resources of New Jersey; Present and future development of New Jersey's mineral resources; Bibliography and Index of the Geology of New Jersey 1753-1945 (*Bull. 59*).

Water Resources.—*Project:* Continued study of the ground water resources of New Jersey.

Topographic and Planimetric Mapping.—*Projects:* Atlas sheets 35 and 36 of the topographic series. *Publication:* Somerville sheet.

NEW MEXICO

Organization.—New Mexico Bureau of Mines and Mineral Resources, Socorro, Dr. E. C. Anderson, Director.

Basic and Economic Geology.—*Projects:* Geology of the Gran Quivira quadrangle; Future oil possibilities of New Mexico; Subsurface geology of Quay County; Survey of the coal industry in New Mexico; Gold reconnaissance of the Hopewell district; Fluorspar in New Mexico; Geology of the Petaca district; Building materials of New Mexico. *Publications:* Geologic literature of New Mexico through 1944 (*Bull. 22*); Stratigraphy and oil-producing zones of the pre-San Andres formations of southeastern New Mexico (*Bull. 23*).

NEW YORK

Organization.—New York State Science Service, Office of Geology, Albany.

Basic and Economic Geology.—*Projects:* Geology of the Cattaraugus quadrangle; Geology of the Schunnemunk quadrangle; Geology of the Utica quadrangle; Glacial geology of the Syracuse region; Geology of the Saranac Lake quadrangle; Cephalopods of the Tully limestones of New York; Hamilton cephalopods of New York. *Publications in Press:* Geology of the Oriskany quadrangle; Geology of the Catskill and Kaaterskill quadrangles; Geology of the Coxsackie quadrangle; Geology of the Lake Sanford titianiferous iron ores.

NORTH CAROLINA

Organization.—Division of Mineral Resources, Department of Conservation and Development, Raleigh, Dr. Jasper L. Stuckey, State Geologist.

Basic and Economic Geology.—*Projects:* Deep River coal field; Manganese deposits in North Carolina; Mica resources of North Carolina; Limestone and marls of the Coastal Plain; Sillimianite in North Carolina. *Publications:* Economic Geology of the Spruce Pine pegamite district; Mica deposits of the Sylva-Franklin district; Kaolin deposits of North Carolina.

Water Resources. — *Projects:* Water resources of the crystalline rocks of North Carolina. *Publications:* Progress report on the ground water of North Carolina; Ground water in the Halifax area.

Topographic and Planimetric Mapping.—*Project:* One topographic mapping project.

NORTH DAKOTA

Organization.—North Dakota Geological Survey, Grand Forks, Dr. Wilson M. Laird, State Geologist.

Basic and Economic Geology.—*Projects:* Geology and Geography of North Dakota; White River formation in North Dakota; Geology of the west side of the Lake Agassiz basin; Geology of the Kelly slough area; Preliminary structural study of the Nesson anticline; Coal correlation in western North Dakota; Limestone and Cement rock investigations in North Dakota. *Publication:* Heavy mineral correlation of the Fox Hills, Hell Creek, and Cannonball sediments, Morton and Sioux Counties, North Dakota (*Bull. 19*).

Water Resources. — *Projects:* Ground water studies in Fargo-Moorhead area, Minot area, Fessenden area; Observation well program. Studies carried on in cooperation with the USGS and the State Water Commission. *Publication:* A Reconnaissance of possible well irrigation areas (*Bull. 20*).

Others. — *Publication:* Twenty-Third Biennial Report of the North Dakota Geological Survey.

OHIO

Organization.—Geological Survey of Ohio, Columbus 10, Dr. Wilber Stout, State Geologist.

Basic and Economic Geology.—*Projects:* Geology of the Hocking Valley; Geology of Holmes County; Monongehela series; Limestones of eastern Ohio; Sharon conglomerate; Iron ores of Ohio. *Publications:* Iron ore bearing formations of Ohio (*Bull. 45*); Occurrences of flint in Ohio (*Bull. 46*); Recent information on Maxville limestone (Info. Cir. 3).

OKLAHOMA

Organization.—Oklahoma Geological Survey, Norman, Robert H. Dott, Director.

Basic and Economic Geology.—*Projects:* Pennsylvanian stratigraphy of east-central Oklahoma; Morrow series in northeastern Oklahoma; Tulsa County; Subsurface structure map of the state; Insoluble residue studies of Arbuckle limestone; Le Flore and Haskell Counties; Dolomite in Arbuckle Mts.; Clays and shales; Woolrock; Oil field brines; Volcanic ash; Asphaltites. *Publications:* Geology and glass sand resources, Central Arbuckle Mts. (*Bull. 65*); Fluoride removal from drinking water (Cir. 25); The Potentials of ground water supplies of the southwest; The Hopper; Oklahoma raw materials for the glass industry.

Water Resources.—*Projects:* Studies of the Rush Springs sandstone; Garber-Wellington; North Canadian river valley; Beaver County; Miami district; Tipton terrace; several municipal water supplies; observation well program; quality of water.

Others.—*Projects:* Assistance to local chambers of commerce in preparation of brochures on mineral resources: Oklahoma Mineral Industries Conference; Sets of minerals, rocks, and fossils for high schools.

OREGON

Organization.—Oregon State Department of Geology and Mineral Industries, Portland, F. W. Libbey, Director.

Basic and Economic Geology.—*Projects:* Geologic mapping of Telocaset quadrangle; Preliminary geologic map of St. Helens quadrangle; Sampling of Tertiary sections in western Oregon for microfossil study; Investigation of mineral deposits in northwest Oregon; Ceramic testing of Oregon clay deposits; Economic and geologic survey of ore deposits in Mt. Reuben area; Geologic survey of silica sand deposits, western Oregon; Mapping of limestone deposit of southwestern Oregon; Study of use of light weight aggregate in making building blocks. *Publications:* Geology and coal resources of Coos Bay quadrangle (*Bull. 27*); Ferruginous baurite deposits of northwestern Oregon (*Bull. 29*); Mineralogical and physical composition of sands of Oregon coast from Coos Bay to mouth of Umpqua River (*Bull. 30*); Eugene silica sand casting results obtained by Oregon Steel Foundry, Portland.

Topographic and Planimetric Mapping. — *Publications:* Geologic map of Coos Bay quadrangle; Preliminary geologic map of St. Helens quadrangle; Quicksilver deposits in Oregon.

PENNSYLVANIA

Organization.—Topographic and Geologic Survey, Harrisburg, Dr. George H. Ashley, State Geologist.

Basic and Economic Geology.—*Projects:* Geology and mineral resources of southeastern Clearfield County; Mississippian stratigraphy; Somerset County report; Study of deep oil and gas sands; Oil and gas of Warren, Sheffield, Kinzua, and Butler quadrangles; Detailed report of oil and gas sands of southwestern Pennsylvania; Sand maps for each of the sands for the whole oil and gas area of Pennsylvania; Anthracite reserves of Pennsylvania; Study of the iron ore deposits. *Publications:* Atlas Smicksburg quadrangle (No. 55); Iron-manganese ore deposit at White Rocks, Cumberland Co. (*Bull. M 26*); Manganese minerals of Pennsylvania (*Bull. M 27*); Oil and gas farm line maps of Franklin and Oil City quadrangles (*Spec. Bull. 2*); Property line maps showing oil and gas fields of the Hilliards quadrangle (*Spec. Bull. 3*).

Water Resources.—*Projects:* Continuation of well gaging; Intensive study of the ground water resources of the Philadelphia region. *Publication:* ground water investigations in Pennsylvania (*Int. Aff.* vol. 13, no. 2).

Topographic and Planimetric Mapping.—*Projects:* First Fork; Cameron; Driftwood; Sinnemahoning; Tamarack; Westport; Keating; Houtzdale. *Publications:* Philipsburg; Powell.

Others.—*Publications:* Pennsylvania's advantages if war drives people underground (*Int. Aff.* vol. 12, no. 12); Small space for the storage of Russian oil in Pennsylvania (*Int. Aff.* vol. 13, no. 4); Iron ores of the Cumberland Valley and their future (*Int. Aff.* vol. 13, no. 5); The Dinosaur, he sought security; found death (*Int. Aff.* vol. 13, no. 5); Grand Canyon of Pennsylvania (*Int. Aff.* vol. 13, no. 7); Geologic specimens, how to collect (*Int. Aff.* vol. 13, no. 9).

RHODE ISLAND

Organization.—Rhode Island Industrial Commission, Mineral Resources Committee, Providence, Dr. Alonzo Quinn, Chairman.

Basic and Economic Geology.—*Projects:* Bed rock of the Pawtucket quadrangle; Glacial geology of the Pawtucket quadrangle; Bed rock and glacial geology of the Georgiaville quadrangle.

Water Resources.—*Projects:* Ground water resources of Providence; Ground water resources of the Pawtucket quadrangle. *Publication:* Ground water resources of the Providence area (*Bull. 1 & 2*).

SOUTH CAROLINA

Organization. — South Carolina Geological Survey, Columbia, South Carolina. Dr. Stephen Taber, State Geologist.

SOUTH DAKOTA

Organization.—State Geological Survey, Vermillion, Dr. E. P. Rothrock, State Geologist.

Basic and Economic Geology.—*Projects:* Glacial geology in the James Valley; Geology of the Missouri Valley. *Publications:* Geology of South Dakota Part III, Mineral Resources (*Bull. 15*); Geologic Survey of Dewey and Corson Counties (R. I. 49); Mineralogy of some pegmatites near Custer (R. I. 50).

Water Resources.—*Projects:* Stream gaging; Water levels on lakes; Observation wells.

Topographic and Planimetric Mapping. — *Project:* Topographic mapping near Miller.

Others.—*Publication:* Biennial Report of the State Geologist for 1942-44.

TENNESSEE

Organization.—Tennessee Division of Geology, Nashville 3, H. B. Burwell, Director and State Geologist.

Basic and Economic Geology.—*Projects:* Subsurface stratigraphy; Oil and gas in southern Cumberland plateau; Barite deposits of east Tennessee; Middle Tennessee phosphate deposits. *Publications:* Oil and gas in the northern Cumberland plateau; The subsurface stratigraphy and structure of the Stones River group in northeast central Tennessee; The subsurface stratigraphy and structure of the pre-Trenton Ordovician and upper Cambrian rocks of central Tennessee; Geology and manganese deposits of northeastern Tennessee.

Water Resources.—*Projects:* Gaging surface streams.

TEXAS

Organization.—Bureau of Economic Geology of the University of Texas, Austin, Dr. John T. Lonsdale, Director.

Basic and Economic Geology.—*Projects:* Geology and minerals of Llano region; Carboniferous of the Llano region; Investigation of Coastal Plain geology; Geology of Houston County; Geology of the Texas High Plains; Study of river terraces, upper Brazos and Colorado rivers; Igneous geology of Trans-Pecos; Mineral resources of Trinty river basin; Revision and compilation of data for new edition of map showing oil and gas fields and structure; Study of Ellenburger group of formations; Mineral resources of Trans-Pecos, Texas; Mineral locality map of Texas. *Publications:* Carboniferous rocks of the Llano region (*Univ. Tex. Pub. 4246*); Contributions to Geology, 1944 (*Univ. Tex. Pub. 4401*); Ellenburger group (*Univ. Tex. Pub.*).

Others.—*Publications:* Building stones of central Texas (*Univ. Tex. Pub. 4246*); Texas mineral resources (*Univ. Tex. Pub. 4301*); Structural map of Texas, 3rd ed.; Geologic map of 4 quadrangles in Houston County, Texas, preliminary ed.

VERMONT

Organization.—Vermont Geological Survey, Burlington, Elbridge C. Jacobs, State Geologist.

Basic and Economic Geology.—*Projects:* Geology of the Newport quadrangle; Vermont copper deposits; Non-metallic producing companies.

Topographic and Planimetric Mapping.—*Projects:* Corinth quadrangle.

VIRGINIA

Organization.—Geological Survey Division of Virginia Conservation Commission, Charlottesville, Dr. Arthur Bevan, State Geologist.

Basic and Economic Geology.—*Projects:* Geology and mineral resources of Clark Co.; Geology and mineral resources of Frederick Co.; Outline of the geology and mineral resources of Smyth Co.; Geology of the Hot Springs district; Geology of Shenandoah National Park and environs; Geology of Virginia state parks; Outline of geology of Virginia; Common rocks and minerals of Virginia; Geology and minerals resources of the following quadrangles; Buena Vista, Abington, Lovingston, Lynchburg, Stony Man, and Vesuvius; Guidebook to the Lee Highway (U. S. Route 11); Guidebook to U. S. Route 20; Tertiary foraminifera; Geology of oil in Lee County; Bauxite in Augusta County; Northeast Piedmont zinc district; Gossan lead district; Industrial limestones and dolomites of Virginia; Mica deposits; Piedmont marble. *Publications:* Commercial granites and other crystalline rocks of Virginia (*Bull. 64*); Industrial limestones of Virginia; Northern and central parts of the Shenandoah valley (*Bull. 65*); Industrial limestones and dolomites in Clinch valley district (*Bull. 66*); Metamorphism along the Pulaski Fault (Reprint 11); Lower middle Ordovician stratigraphy of Shenandoah valley (Reprint 12).

Water Resources.—*Projects:* Public and industrial ground water supplies of the Roanoke area; Chemical character of the Coastal Plain ground water. *Publication:* Selected well logs in the Virginia coastal plain north of the James River.

Topographic and Planimetric Mapping.—*Projects:* Boone Mille; Broadway; Callaghan; Clifton Forge; Craigs Creek; Dillon Mill; Edinburg; Goshen; McDowell; Mt. Jackson; New Canton; Parnassus; Peaks of Otter; Pounding Mill; Radford; Strasburg; Warm Springs.

Others.—*Publications:* Record of Virginia mineral production in 1943 (Circ. 4); Planning mineral resources into mineral industries (Circ. 5).

WEST VIRGINIA

Organization.—West Virginia Geological and Economic Survey, Morgantown, R. C. Tucker, Acting State Geologist.

Basic and Economic Geology.—*Projects:* Gas analysis; Studies on acidizing Big Lime; Wetzel County oil and gas; Oriskany structure map of the state; Examination of iron ores; Clays of West Virginia. *Publications:* Fifty common rocks and minerals of West Virginia (*Bull. 10*); Well sample records (Vol. 17).

Water Resources.—*Project:* Pt. Pleasant ordnance plant area. *Publications:* Ground water conditions along the Ohio valley at Parkersburg, West Virginia, (*Bull. 9*).

WISCONSIN

Organization.—Wisconsin Geological and Natural History Survey, Science Hall, Madison 6, E. F. Bean, State Geologist.

Basic and Economic Geology.—*Projects:* Metallic and non-metallic investigations in the vicinity of Wasau and Niagara.

Water Resources. — *Projects:* Ground water surveys in progress.

Topographic and Planimetric Mapping. — *Projects:* Planimetric mapping in the northern part of the State; Topographic mapping in the northern part of the western upland. *Publications:* Planimetric maps of Black River, Clam Lake, Kennan, Mellen, Kennedy, Rib Lake.

Others.—*Projects:* Soil surveys in Langlade and Barron Counties.

WYOMING

Organization.—Geological Survey of Wyoming, Laramie, Dr. Horace D. Thomas, State Geologist.

Basic and Economic Geology.—*Projects:* Tertiary history of the Medicine Bow Mts.; Vanadium in Wyoming crude oils; Titaniferous magnetite deposits of the Laramie Range; Phosphate rock in the Lander area, Fremont Co.; Anorthosite of the Laramie Range; Wyoming sericite deposits; Jade occurrences in Wyoming; Bentonite in the Casper area, Natrona County.

RECLAMATION AND IRRIGATION

By William E. Warne

Assistant Commissioner, Bureau of Reclamation,
Department of the Interior

IRRIGATION FACILITIES IN THE WEST

More than 4,000,000 acres of land in arid and semi-arid regions of the West are now served by irrigation facilities constructed by the Bureau of Reclamation. This Federal agency, established in the Department of the Interior 43 years ago, has the responsibility for conserving and making use of the water resources of the West.

To harness great rivers such as the Colorado and the Columbia, Bureau engineers have designed the highest and the largest dams in the world—Boulder Dam on the Colorado and Grand Coulee Dam on the Columbia. Great structures like these are the keys to multiple-purpose projects that provide water for irrigation, generation of hydroelectric power, municipal water supplies, flood control, improved navigation, and in addition, yield recreational and wildlife benefits.

MISSOURI RIVER BASIN PROJECTS

The Bureau of Reclamation now has in operation, under construction, or authorized more than 100 projects, including 29 initial projects in the Missouri River Basin, authorized by the Flood Control Act of 1944.

The Missouri Basin Plan is the first of the comprehensive river-development programs designed by the Bureau to receive Congressional approval. Similar studies are being prepared for 14 other river basins in the West.

POST-WAR MULTIPLE-PURPOSE PROGRAM

Realizing the need for settlement and employment opportunities, the Bureau presented to the Congress April 12, 1945, an inventory of 415 potential irrigation and multiple-purpose projects. More than 100 of these have been authorized and construction is under way on some of them. This construction program will be accelerated as funds are made available.

If the whole inventory is approved by the Congress, the Bureau's post-war program will create approximately 200,000 new farms, extending irrigation service to nearly 11,000,000 acres, and in addition furnishing supplemental water for some 11,000,000 acres now inadequately watered. Power capacity would be increased from the present 2,439,300 kilowatts to 9,324,000 kilowatts.

FOOD PRODUCTION PROJECTS

From the 4,000,000 acres now served by Bureau facilities, the West and the nation have benefited not only through increased production of essential foods, but also by greater purchasing power made possible by higher crop values.

The gross value of 1944 food and forage crops on Bureau projects totaled more than $411,000,000. In meeting wartime food needs, farms on Reclamation lands produced more than 11,000,000 tons, including feedstuffs that maintained meat and dairy production at a high level. Major crops produced on these irrigated lands are sugar beets, vegetables, fruits, and alfalfa.

The average per-acre value of crops on Bureau-irrigated lands in 1944 was the highest on record, an average of $99.27 per acre, compared with $96.82 in 1943 and $47.30 in 1941. The highest average crop value in 1944 was reported for the Tieton division of the Yakima Project at $598.34 per acre, closely followed by the Okanogan Project at $592.32 per acre. Both are in the State of Washington.

Gross crop values exceeding an average of $100 per acre were also reported on the following projects—the Salt River (Arizona); Yuma (Arizona-California); Orland, Imperial Irrigation District, and Central Valley (California); Fruitgrowers Dam, and the Orchard Mesa division of the Grand Valley Project (Colorado); Rio Grande (New Mexico-Texas); Klamath (Oregon-California); Owyhee Ditch Company (Oregon-Idaho); and Provo River and Weber River (Utah).

POWER PRODUCTION

Besides contributing to the agricultural supplies of the nation, Bureau of Reclamation projects made an outstanding record in power production in 1945. Hydroelectric plants on Bureau projects in the fiscal year 1945 produced almost 14,000,000,000 kilowatt hours of electric energy, most of which went to war industries.

Electrical energy, generated at Bureau of Reclamation dams, pumps water for irrigation, and supplies power for cities and towns with a combined population of over 4,000,000. When the construction program now authorized is completed the various services of the Bureau, including irrigation, municipal water, and power, will be extended to regions in which more than 10,000,000 persons live.

Hydroelectric energy produced on its projects will be an important factor in stimulating the establishment of hundreds of small businesses and in the development of food processing plants, mineral, and other industries in the West.

During the year, all construction on Bureau of Reclamation projects was geared to war food and war power programs. With wartime restrictions lifted, it will be possible, where sufficient funds are available, to complete many projects which are now under construction and to begin work on others that have been authorized but on which construction was deferred.

Ten dams under construction at the end of the year were as follows:

CONCRETE DAMS

Dam	Reservoir Capacity (Acre Feet)	Height (Feet)	Per Cent Complete
Altus	151,650	110	98
*Keswick	23,000	158.5	85

EARTH DAMS

Dam	Reservoir Capacity (Acre Feet)	Height (Feet)	Per Cent Complete
Anderson Ranch	493,199	444	60
Newton	5,500	90	97
Deerfield	15,000	100	75
Scofield	73,000	68	50
Wickiup	180,000	100	80
Box Butte	31,500	66	75
Jackson Gulch	10,000	180	20
Shadow Mountain	15,000	44	60

* No construction during fiscal year ended June 30, 1945.

IRRIGATION CANALS

In addition to dams and power plants, the Bureau constructs many other irrigation facilities. Completed during the year was the 37-mile Madera Canal in the Central Valley Project (California). Construction was started on the 160-mile Friant-Kern Canal, and on other important features of the great Central Valley Project.

The first section of the Conchas Canal was completed in 1945 to provide water for an additional unit of 7,000 acres in the 45,000-acre Tucumcari Project (New Mexico).

FLOOD-CONTROL AND IRRIGATION DAMS

Construction passed the half-way mark on the Anderson Ranch Dam, Boise Project, Idaho. When completed this will be the highest earthfill dam in the world. It will provide flood control and store irrigation water for 290,000 acres now inadequately watered.

An earth dam is under construction on the Deschutes Project, Oregon, to provide a full water supply for approximately 50,000 acres and supplemental water to an additional 50,000 acres. Construction was also continued on the canals and distribution system for irrigating 32,000 acres on the Yakima Roza Project, Washington.

Work progressed on the Gila Project in Arizona and on the Coachella Canal in southern California. Other construction included lining of the 13-mile Alva B. Adams Tunnel under the Continental Divide. This is a part of the Colorado Big Thompson Project. A limited program of work was also carried on at Green Mountain and

Shadow Mountain dams on this project which will serve 615,000 acres in northeastern Colorado. Work of Reclamation engineers included, among other major undertakings, preparation of the designs and specifications for the construction of the $17,500,000 San Diego Aqueduct.

CONSTRUCTION SURVEY

Reclamation construction during the year involved the use of more than 300,000 barrels of cement and 220,000 cubic yards of concrete were placed. Fifty miles of canals were constructed and work was continued on other water distribution facilities.

A survey of cumulative construction by the Bureau of Reclamation from June 30, 1902 to June 30, 1945 shows that the Bureau of Reclamation has built 15,495 miles of irrigation canals. Storage reservoirs behind its dams have a capacity of 66,558,840 acre-feet and its storage and diversion dams combined contain a total of 83,743,155 cubic yards of materials.

The 347 tunnels constructed by the Bureau have a combined length of 560,271 feet. Thirty-one hydroelectric plants operating on its projects have an installed capacity of 2,439,300 kilowatts. Part of the energy is marketed over 2,164 miles of transmission lines built by the Bureau.

In the construction of its projects the Bureau has excavated 606,313,120 cubic yards of earth and rock, poured 33,671,861 cubic yards of concrete, and used 38,289,133 barrels of cement.

Bureau of Reclamation irrigation works built over the 43-year period also include 209,016 canal structures, 5,196 miles of waste water ditches and drains, 13,676 bridges with a combined length of 362,002 feet, 23,620 culverts totaling 1,101,146 feet, 6,318 flumes with a combined length of 873,989 feet, 331 pumping plants having a discharge capacity of 7,422 cubic feet per second, and protective levees containing 12,758,365 cubic yards of materials.

MATERIALS AND EMPLOYMENT FACTORS

Although the Bureau's projects are located in the 17 western states, their construction creates job opportunities from Maine to California. Behind every man on the construction job there are hundreds of helpers thousands of miles away. Materials needed for this work include such basic products as iron and steel, cement, electrical equipment and supplies, foundry and machine shop products, and lumber. Much of this material and equipment comes from the 31 states outside the arid and semi-arid regions of the West. Thousands of man-hours of labor are required in distributing, processing, and transporting these materials to a construction site. Thus, building of a Reclamation project creates a nationwide volume of work.

Schedules on incompleted projects and on proposed projects are being adjusted to meet employment demands. Completion of all proposed developments, however, would not mean the end of employment opportunities. It will open more and more jobs on farms, in businesses in project towns, and in factories of the other sections of the country which will be kept busy supplying new western markets.

PUBLIC LANDS

By Fred W. Johnson

Commissioner, General Land Office, Department of the Interior

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ADMINISTRATION

The administration of 778,000,000 acres of public land in the United States and Alaska so as to insure maximum beneficial use of the nation's natural resources in the post-war period, was the major objective of the General Land Office at the close of the 1945 fiscal year. With the approaching end of the war, foreshadowing a transition from military to peace-time activities, operations fulfilling the requirements for public land utilization in the fighting program gave way to the formulation of plans for the solution of after-the-war problems.

Meantime, this official real estate agent of the Federal Government closed its books for the fiscal period with a net profit both in conservation advancement and in financial gains in the administration of the public domain.

WAR SERVICE

During the war years, the General Land Office quickly met the demands for land and resources required for the prosecution of the military program. More than 16,000,000 acres of the public domain were made available as sites for camps, gunnery ranges, aviation bombing fields, tank training areas, and other combat training zones. In addition, many secret withdrawals of land were made to assist the Army and Navy in carrying on the war, and several millions of acres were placed in a state of reserve to permit the untrammelled development for war purposes of the petroleum and other mineral resources in the areas. At the same time, the activities of trained investigators, cadastral engineers, and other experts in land identification, classification, and management were centered almost entirely in war-connected tasks, ranging from the examination of thousands of mining claims to the segregation of areas in Arizona, New Mexico, and other states for use in experimentation and in the development of the atomic bomb. Never before in history had the public lands under the jurisdiction of the General Land Office been called upon to provide such an abundant supply of natural resources for military purposes as in the period of the Second World War.

POST-WAR PROBLEMS

Meantime, the essential necessity for continued management of the public lands under progressive conservation policies for use and development with an eye to the requirements of the future, became increasingly evident during the year. The trend of scientific research already points the way to new fields of usefulness for the public domain, broadening the scope of activities in the development of resources beneath the surface and expanding the opportunities for utilization of the land itself. The wider horizons for mineral uses revealed by the discovery and development of the atomic energy, the steadily mounting requirements for lumber and other forest products to repair the ravages of war, and the growing demands from ex-servicemen for land settlement opportunities serve to illustrate the trend toward more extensive usage in the years immediately ahead. New methods and new laws must be provided with which to carry out these new tasks which, in effect, mark the beginning of a new era in national land administration.

Land administration experiences in connection with the prosecution of the war sharply accentuated the pattern for efficient management of the public domain in time of peace. At the close of the 1945 fiscal year, definite alterations in Federal law and in procedures of the General Land Office were revealed as imperatively needed to bring about that efficiency to which the public is entitled and without which the maximum beneficial use of the national lands and their resources can not be assured. Some of these needs had long been recognized, but their enactment was held in abeyance for the duration of the war.

Today, freed from the restriction arising from the necessity for emergency military action, problems awaiting solution include the rejuvenation of Federal mining laws and the enactment of a general mineral leasing statute. A thoroughgoing examination of the remaining vacant public land to determine its availability for homesteading use also should be undertaken to meet the needs of returned veterans for land settlement opportunities in the United States and Alaska.

Full benefit from the use of the public land depends, however, upon much more than mere legislative enactments, important though they may be to proper administration by the General Land Office. It depends also upon a program of utilization based upon a carefully planned integration of the objectives and operations of the office.

LAND SETTLEMENT OPPORTUNITIES

The end of the war centered the thoughts of many American servicemen and servicewomen upon the prospects of establishing a permanent home upon the public lands of the United States. Visualizing broad opportunities for settlement such as existed in the earlier stages of American history, thousands of members of the armed forces turned to the General Land Office during the last fiscal year for information and guidance in matters connected with the Federal homestead laws. A special leaflet dealing in terse, question-and-answer form with the problems of homesteading on land in continental United States, was prepared for the benefit of the men and women in the military service, and distribution of other informational material dealing with the public lands both on the mainland and in Alaska was expedited in response to popular demand.

While prepared to render all possible assistance in the solution of land settlement problems for both military personnel and civilians, attention is called by the General Land Office to the fact that, since homesteading as popularly understood, first was set under way by President Lincoln 83 years ago, good farm land upon which an agricultural living can be made as required by the homestead law is scarce on the vacant, unappropriated, and unreserved public domain in the United States.

Meanwhile, another type of use of the public lands which does not require the making of a living by agriculture, during 1945 became one of the major operational problems confronting the Office. This opportunity for land settlement by World War veterans as well as civilians is afforded under the terms of a law which authorizes the lease or sale of not to exceed five acres of public land for home, camp, cabin, health, convalescent, recreational, or business purposes.

Popularity of the plan is indicated by the fact that applications for leases under the law totalled more than 3,200 in 1945, as compared with only 1,600 during the preceding six-year period. To help meet this increased demand, special land examination had to be made, with the result that more than 30,000 acres of land, the major portion of which is located in southern California, were recommended for classification as suitable for use under the Small Tract Act.

As the fiscal year drew to a close with prospects for a rapid return of service personnel to a civilian status, interest in the small tract land settlement program increased, areas in the vicinity of Tucson and Phoenix, Ariz., Sacramento, Calif., and Denver, Col., being applied for, as well as tracts in Idaho, Nevada, New Mexico, and Oregon. Further expansion of the program to provide still more areas for lease and a streamlining of administrative processes to facilitate the work is an essential task confronting the General Land Office in the postwar period.

ALASKAN DEVELOPMENT

The fact that more than nine-tenths of the 375,000,000 acres of land and water in Alaska consist of public domain remaining in Federal ownership, places upon the General Land Office a large share of direct responsibility for the proper administration and development of the natural resources of the territory. Foremost among these is the obligation to supply authentic information concerning the various types of land use opportunities within its borders. During 1945, this requirement was met in part by the distribution of an information bulletin on Alaska which not only served as a standard reference publication for other Federal agencies and members of Congress, but also provided thousands of servicemen and women with data relating to the privileges and obligations inherent in the administration of the public land laws in Alaska.

Shortly after the close of the fiscal year, Congress enacted a law making the provisions of the Small Tract Act, which hitherto had been confined to Continental United States, equally applicable to the public lands in Alaska. As a result, plans were immediately set under way to gear General Land Office operations in the territory to the requirements of the new law.

At the same time, definite steps were taken for strengthening the organization in Alaska to render effective service in meeting land settlement and other problems of resource development during the post-war period. Specifically, a new regional field office of the Branch of Field Examination was established at Anchorage to handle matters formerly routed through San Francisco, while the Alaskan Fire Control Service was vested with broader authority in the protection of public land areas from fire and in the use of timber from the public domain. In addition, special examination of some of the public lands in the territory was made during the summer of 1945 to insure up-to-date evaluation of the areas from the standpoint of suitability for agriculture or other use in the economic development of Alaska.

SUSTAINED YIELD CONSERVATION

Maximum benefits from the natural resources of the United States in the post-war period will require a complete cessation of the haphazard use which in former years led to denuded timbered areas, abandoned "ghost towns," and the depletion through over-grazing of the rangelands of the west and southwest. Responsibility for the attainment of this goal on the public lands under national conservation policies rests in large measure upon the operational activities of the General Land Office.

Foremost among its obligations in this field is the establishment of sustained-yield forest management practices on all the Federal lands under its jurisdiction, as required by Congressional mandate enacted during the 1945 fiscal year. Under this program, forestry operations on the timbered public domain eventually will be brought into a balance ratio in which the volume of tree-cutting and of tree-growing will be regulated so as to provide a continuing supply of those natural resources on the land.

Adequate protection from fire of the 262,500,000 acres of timber, grass, and brush land areas of the public domain in the United States and Alaska also is an additional administrative task assumed by the General Land Office during 1945, and plans were completed at the close of the fiscal year to preserve these resources for post-war use.

OREGON AND CALIFORNIA REVESTED LANDS ADMINISTRATION

World demands for lumber and other forest products in the post-war period were reflected in operations and plans of the Oregon and California Revested Lands Administration during the 1945 fiscal year. Established in 1938 to carry out a broad program of sustained yield forestry management on 2,500,000 acres of land in western Oregon, which once was encompassed in a Federal railroad grant but later revested in Government ownership, this branch of the General Land Office maintains its headquarters at Portland, Ore.

Rated as the world's largest experimental laboratory in practical cooperative sustained yield forest management, the "O. and C." lands provide the testing ground for a world pattern of forestry economy. Under this program all elements would join in operations under which tree growing would reasonably balance tree cutting to the end that a continuing supply of raw materials will be available for the existence of industry and dependent communities. Definite plans for the further advancement of the sustained yield program in the Pacific Northwest were made by the Administration during the fiscal year.

Meantime, definite contributions to the nation's lumber needs were made during the year from the "O. and C." lands which contain one of the finest stands of Douglas fir trees in the United States. In 1945, sales of timber from these lands exceeded 426,000,000 board feet valued at approximately $1,518,000.

The use of aerial mapping as a means of more speedily completing an inventory of timber resources in these lands is expected to form a part of the work program for 1946.

Further augmenting the post-war program for betterments in the industry on the Pacific Coast is the planting of seedlings on the denuded lands by the "O. and C." organization. Utilizing Civilian Public Service enrollees, more than 1,550,000 seedlings were planted and 350,000 trees prepared for transplanting in the field during the year.

With the end of the war, studies for broader use of the "O. and C." lands for recreational, grazing and other uses, which were laid aside during the emergency, were ready to be resumed at the close of the 1945 fiscal year.

CADASTRAL ENGINEERING SERVICE

Plans for reorganization of this scientific branch of the General Land Office so as to meet the demands for accurate surveys in connection with land administration during the post-war period were brought to a completion near the end of the 1945 fiscal year. Involving the transfer of headquarters for this work from Denver to Washington, D. C., the reconversion program of the Cadastral Engineering Service contemplates the execution of a greater amount of actual survey work in the field than in previous years.

One of the major requirements in the first transfer of land from Government to private ownership, cadastral surveying consists of careful measurement of areas on the ground, the recording of such measurements by the placing of monuments or other markers, and the preparation of maps scientifically compiled from field notes made by trained engineers at the time of the on-the-ground measurements.

First undertaken 150 years ago in accordance with the ordinance of 1795, these surveys were carried on in 23 states and in Alaska in order that the identification of the assets in the people's $250,000,000 real estate might be adequately protected in 1945.

Altogether a total of 9,231 miles was surveyed or resurveyed in 1945, some of the 1,287,490 acres being encompassed in areas acquired for military purposes. With an increase in land settlement in Alaska looming large as a potential post-war development, the plans of the Cadastral Engineering Service include an expansion of survey work there.

BRANCH OF FIELD EXAMINATION

The examination of land upon which is based the rejection or approval of plans for its use under the public land laws, is the major responsibility of this branch of the General Land Office. By maintaining a staff of trained technicians, including mining and civil engineers, geologists, lawyers, auditors, timber cruisers, range specialists, and others experienced in land investigations, the Branch handled many difficult and unusual types of cases during 1945. For example, the reappraisal of unsold lots in a townsite in upper Miami Beach, Florida, was made by field examiners from this agency, and the subsequent auction sale brought out bidders who ran prices up to a new high in Florida beach property.

At another period of the year agents of the Branch were assigned to investigate mining claims on areas set aside as military bombing ranges, while a third group made extensive investigations in the now famous Alamogordo area in New Mexico where the atomic bomb experimentation was carried on.

Paving the way for more efficient service to the public in the development of Alaska, a new regional office was established at Anchorage. Other regional offices maintained by the Branch of Field Examination are located in San Francisco, Billings, Mont., Salt Lake City, and Albuquerque, N. M.

Responsibilities placed upon the General Land Office by Congress in the enactment of the sustained yield forestry management act greatly increased the task of the Branch of Field Examination during the 1945 fiscal year in preventing trespass upon the public domain. Altogether, over $70,000 was collected in payment of trespass violations of the public land laws.

PUBLIC LANDS FOR PASTURES

In the 1945 fiscal year the use of more than 12,400,000 acres of public land in the United States and Alaska for the grazing of livestock was supervised by the General Land Office as another element in its administration of the people's real estate assets. Consisting of tracts in Alaska suitable for grazing purposes and similar areas in the United States not included in established Federal grazing districts, 12,479,270 acres were made subject to use under 10,593 leases involving annual rental of $229,523.

In order that maximum production of meat and other livestock products might be provided from the public lands during the reconversion period, plans were being formulated at the close of the 1945 fiscal year to increase the stocking capacity of the range lands. It is estimated that, with proper range facilities and improved range practices, the capacity of the leased area could be increased 50 per cent and an additional 10,000,000 acres leased if the improvement and rehabilitation program is carried forward to completion. Meanwhile, operations of the Range Development Service of the General Land Office, previously halted by war conditions, were scheduled for resumption as the end of the war approached.

Under the supervision of this Service, improvements on the range such as the development of springs and wells, the construction of fences, the reseeding of areas denuded of vegetation, and the control of rodents and other predatory animals is undertaken in cooperation with the stockmen.

AREA OF THE PUBLIC LANDS

The area of public lands remaining in Federal ownership, including Indian trust and tribal lands, as of June 30, 1945, amounted to about 413,000,000 acres in the public land states and about 365,000,000 acres in Alaska. Approximately 400,000,000 acres of these public lands were vacant, unappropriated, and unreserved as follows: 37,000,000 acres in the states outside of Federal grazing districts; 133,000,000 acres within such districts; and 230,000,000 acres in Alaska. During the

ACREAGE OF LANDS PATENTED WITH MINERALS RESERVED TO THE UNITED STATES

(as of June 30, 1945)

Type of Mineral Reservation	Patented During Fiscal Year 1945	Total Patented Through June 1945
Reservation of all minerals:		
Under Stock Raising Act	15,094	33,586,052
Under other acts	50,684	2,376,256
Total	65,778	35,962,308
Reservation of specific minerals:		
Coal	5,084	10,875,615
Others[1]	7,342	1,928,702
Total	12,426	12,804,317
Grand total	78,204	48,766,625

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[1] Includes coal reserved in combination with other minerals.

year 692,000 acres were withdrawn for various public purposes while withdrawals reserving 9,497,000 acres were revoked.

Of the approximately 778,000,000 acres remaining in Federal ownership in the States and Alaska, 118,000,000 acres in the States and 363,000,000 acres in Alaska were still unsurveyed as of June 30, 1945.

LEASES AND PERMITS

During the year an additional area of 1,793,513 acres was brought under lease, including mineral permits and licenses, making a total of 17,707,440 acres under lease at the end of the year. The types of leases in force June 30, 1945 are shown by the following tables:

MINERAL LEASES, PERMITS, AND LICENSES OUTSTANDING [1]

(as of June 30, 1945)

Mineral	Leases		Permits		Licenses		Total	
	Number	Acres	Number	Acres	Number	Acres	Number	Acres
Oil and gas	6,969[2]	4,521,486	—	—	—	—	6,969	4,521,486
Coal	331	76,190	79	66,635	88	3,385	498	146,210
Phosphate	9	5,911	—	—	—	—	9	5,911
Potash	20	47,292	1	2,539	—	—	21	49,831
Silica sands	2	400	—	—	—	—	2	400
Sodium	4	1,629	34	53,224	—	—	38	54,853
Total	7,335	4,652,908	114	122,398	88	3,385	7,537	4,778,691

[1] Does not include permits granted to Federal war agencies.

[2] Does not include 25 leases within naval reserves (10,162 acres).

LEASES OTHER THAN MINERAL LEASES OUTSTANDING

(as of June 30, 1945)

Type of Lease	Number	Acres	Annual Rental
Aviation	43	28,776.27	$ 525.00
Fur farm (Alaska)	19	133,810.00	775.00
Grazing (Alaska)	9	1,168,953.93	1,269.35
Grazing (Oregon and California)	212	263,044.01	8,368.08
Grazing (Taylor Act, sec. 15)	10,584	11,310,316.49	228,254.44
Recreational	17	20,003.78	[1]610.70
Small sites (5-acre tracts)	626	3,091.32	[2]3,080.00
Water well	15	600.00	585.50
Others	3	153.01	10.00
Total	11,528	12,928,748.81	243,478.07

[1] Does not include rental of 1 lease, the rental of which is based on receipts.

[2] Does not include rental of 10 business site leases, the rentals of which are based on receipts

In addition, 393,000 acres were being used at the end of the year by Federal and local agencies, private individuals, and corporations under permit from the Commissioner of the General Land Office. War agencies held departmental permits for the use of almost 24,000,000 acres of public lands.

HOMESTEADS, SALES, AND OTHER ENTRIES

Although the total number of entries on the public lands declined again during the year, the number of new homesteads and public auction sales increased over the previous year. The number of new homesteads in Alaska totaled 117, compared with 94 in the fiscal year of 1944 and 79 in 1943.

The following table shows the new entries and selections allowed, the entries finally approved, and the patents and certifications issued during the year. At the end of the year, 4,156 entries embracing 626,000 acres were pending, awaiting further compliance with the public land laws by entrymen or final action by the General Land Office.

LAND GRANTS

Title to 73,765 acres was conveyed during the year in satisfaction of grants of public lands made by the Congress to states and railroads for public purposes. Grants to states included 43,237 acres of indemnity school land selections, 14,983 acres of park selections, 9,280 acres of swamp land, and 4,726 acres selected for miners' hospitals. A total of 1,539 acres was patented to railroad com-

ORIGINAL ENTRIES AND SELECTIONS

(Fiscal Year 1945)

Type of Entry or Selection	Original Entries and Selections[1]		Final Entries[1]		Patents and Certifications[1]	
	Number	Acres	Number	Acres	Number	Acres
Homestead entries:						
Stock raising	—	—	26	12,711.18	32	15,094.37
Enlarged	8	2,162.83	11	2,622.27	11	2,799.81
Reclamation	[2]17	2,133.50	118[5]	12,715.49	158	16,458.66
Forest	3	178.73	3	197.67	7	530.98
Commuted	—	—	11[6]	1,064.95	[8]3	366.59
Sec. 2289 R. S., et al.	157	18,218.69	80[7]	8,086.58	[9]68	6,872.43
Total homestead entries	185	22,693.75	249	37,398.14	279	42,122.84
Other entries and selections:						
Desert land entries	13	1,280.82	22	2,333.58	30	3,961.50
Public auction sales	—	—	149	13,058.34	110	9,454.01
Timber and stone entries	—	—	1	40.00	3	98.60
Mineral entries	49	6,487.87	87	6,095.33	58	5,814.49
Indian selections	—	—	—	—	103	551.04
Miscellaneous cash sale entries	2	(4)	230	2,126.04	139	8,571.27
Exchanges	—	—	—	—	160	72,389.57
State selections	25	9,802.18	—	—	24	[10]72,226.59
Curative and supplemental patents	—	—	—	—	174	(11)
Others	(3)	0.73	8	306.27	80	1,773.19
Total other entries and selections	89	17,571.60	497	23,959.56	881	174,840.26
Grand total	274	40,265.35	746	61,357.70	1,160	216,963.10

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[1] An original entry or selection is one made in pursuance of an act of the Congress which prescribes the terms and conditions under which patent may be issued or other evidence of title granted. An original entry becomes a final entry upon compliance by the entryman with further requirements of the law, such as residence or additional payment, and upon the issuance of a final certificate. A final certificate shows that, in the absence of irregularity, the entryman is entitled to a patent and passes equitable title to the land to the entryman. Where upon final examination it is found that an entry or selection is in proper form and that the law has been complied with, a patent conveying legal title to the claimant is issued. In the case of certain State selections, the legal title is conveyed upon approval thereof by the Secretary of the Interior and upon certification by the Commissioner of the General Land Office.

[2] Includes 3 homesteads on ceded Indian lands (433.60 acres).

[3] One selection was amended.

[4] Townlots upon which only part payment was made; area not tabulated.

[5] Includes 4 homesteads on ceded Indian lands (400.00 acres).

[6] Includes 9 homesteads on ceded Indian lands (759.94 acres).

[7] Includes 14 homesteads on ceded Indian lands (1,240.90 acres).

[8] Includes 1 homestead on ceded Indian lands (80.00 acres).

[9] Includes 3 homesteads on ceded Indian lands (280.75 acres).

[10] Includes certifications, 47,963.15 acres.

[11] Acreage previously reported.

panies pursuant to the Transportation Act of 1940. In addition, 16 patents were issued to states to give them additional evidence of title to 407,833 acres of previously granted school lands.

A total of 218 applications for rights-of-way were approved during the year under laws which provide for the granting of rights-of-way over the public lands for telephone and telegraph lines, public roads, pipelines, and other purposes. Of the applications approved, 104 were permits or easements with an annual rental of $1,730 and 32 were temporary rights-of-way over "O. and C." lands with an annual rental of $160.

LAND EXCHANGES

Exchanges of land with private owners and local governments resulted in the addition of 56,087 acres to grazing districts in exchange for 51,954 acres of Federal land; 9,037 acres to Indian reservations in exchange for 9,079 acres; 480 acres to the "O. and C." lands in exchange for an equal acreage; and 197,395 acres to national forests in exchange for 10,877 acres of land and sufficient timber to equalize the values involved.

RECEIPTS AND EXPENDITURES

Receipts from all sources during the year totaled $13,381,653. Mineral rentals, royalties, and bonuses accounted for 82 per cent of the total receipts and sales of timber from the Oregon and California and Coos Bay lands for an additional 13 per cent. The remaining 5 per cent were realized from sales of public and ceded Indian lands, rentals, fines and penalties, copying fees, and from miscellaneous sources.

DISPOSITION OF RECEIPTS OF THE GENERAL LAND OFFICE[1]

(Fiscal Year 1945)

Source of Receipts	Covered in the Treasury Earmarked For				
	General Fund	Reclamation Fund	States and Counties	Indian Trust Funds	Total
Sales of public lands	$79,582.17	[2]$100,000.00	[2]$3,800.00	—	$183,382.17
Fees and commissions	17,359.71	[2]61,000.00	—	—	78,359.71
Mineral leases and permits:					
Mineral Leasing Act	1,005,976.36	5,281,375.89	3,772,411.35	—	10,059,763.60
Red River oil and gas lands	—	—	3,399.75	$5,666.24	9,065.99
Potash	68,098.61	410,095.34[3]	255,369.79	—	733,563.74
Other	216,604.10[4]	—	—	—	216,604.10
Total mineral	1,290,679.07	5,691,471.23	4,031,180.89	5,666.24	11,018,997.43
Oregon and California grant lands	867,094.56	—	867,094.57	—	1,734,189.13
Coos Bay grant lands	15,433.74	—	15,000.00[2]	—	30,433.74
Taylor Act grazing leases	57,734.66	57,734.66[5]	115,469.32	—	230,938.64
Rights-of-way leases	31,977.49	444.51	—	—	32,422.00
Sales of reclamation town lots	—	7,498.64[6]	—	—	7,498.64
Sales of Indian lands	—	—	—	4,718.34	4,718.34
Copying fees	21,103.63	—	—	—	21,103.63
Miscellaneous	39,609.46	—	—	—	39,609.46
Grand total	2,420,574.49	5,918,149.04	5,032,544.78	10,384.58	13,381,652.89

[1] Before final settlement of all accounts by the General Accounting Office.

[2] Estimated.

[3] Includes $52,577.64 collected in California under act of October 2, 1917 (40 Stat. 297).

[4] Includes $23,767.94 collected in Wyoming under act of June 26, 1926 (44 Stat. 1621), $176,868.94 collected in California under Executive order 9087 dated March 5, 1942, and $15,967.22 collected in Alaska.

[5] Range improvement fund.

[6] Includes $112.50 from sale of reserved reclamation lands.

Of the total receipts, 38 per cent will be distributed among various state and county governments and 44 per cent will be covered into the Reclamation Fund. The remainder, except for $10,384.58 which will be credited to Indian trust funds and $57,734.66 which will be credited to the Range Improvement Fund, will be covered into the general fund of the Treasury.

Expenditures from appropriations amounted to $2,365,005 distributed as follows: general administration, $867,783; surveys, $517,297; field examination, $343,482; administration of the revested and reconveyed grant lands, $290,956; district land offices, $267,925; range improvements, $44,275; and fire control in Alaska, $33,287. Expenditures, aggregating $319,191, were made from funds transferred to the General Land Office for the emergency protection of public lands and for soil and moisture conservation operations. The table (p. 342) shows the receipts earned during the year, by sources and Treasury accounts.

PUBLIC UTILITIES

By H. M. Olmsted
Public Utility Engineer-Accountant

GENERAL

Cessation of hostilities in Europe and the Pacific in 1945 had large effects on public utilities, causing a sharp decline in the industrial requirements for such services, but the problem of reconversion was much less profound than in many other fields. Changes in demand showed notable variance among different classes of utilities and consumers and created problems of readjustment. Removal of war-time restrictions and return of many employees from the armed services permitted a start on rehabilitation and expansion of facilities other than for war industry. Shortages of materials, and to some extent labor troubles, caused delays and difficulties in certain directions. The startling development of atomic energy held portents for the field of heat and power but apparently in a period many years hence.

PASSING OF THE OFFICE OF WAR UTILITIES

In September, the Office of War Utilities went out of existence after four and one-quarter years during which it and its predecessors controlled the broader phases of construction and operation of electric utilities and, somewhat later, exercised corresponding control over gas, water, steam heat, and communications facilities. With the passing of OWU these controls were nearly all removed, except for control over inventories of materials and supplies, for various industries, by the War Production Board (superseded on Nov. 3 by the Civilian Production Administration), and for telephone priorities.

ANNUAL MEETING OF THE NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS

The National Association of Railroad and Utilities Commissioners, after deciding against an annual convention while the war was on, held its 57th annual meeting at Miami Beach, Florida, early in December. Emphasis was laid on the duty of state utility commissions to require that reductions in wholesale electric and gas rates, ordered by the Federal Power Commission to be made by interstate companies, be passed on by the electric and gas distributing companies to the consuming public. No further amendments to the Federal Power Act were recommended by the Association's legislative committee, although the subject was still under study. The committee on valuation reported continued investigation of the effect of the United States Supreme Court's decision in the Hope Natural Gas Co. case (THE AMERICAN YEAR BOOK for 1944, p. 318) and stated: "The cost concept is supplanting the value concept in the determination of the base figure on which the rate of return is to be calculated. . . . Continuing analysis of the rate-making elements (capital and operating costs, depreciation, revenues, profits, rates of return) and prompt action by commissions, based upon such continuing analysis and scrutiny, are taking the place of long-drawn-out proceedings and litigation in the courts."

ELECTRIC LIGHT AND POWER

The Edison Electric Institute's curve of output of electrical energy in the first seven months of 1945 closely paralleled that of the same period in 1944, at a somewhat higher level, representing in general the greatest production for any corresponding period in the history of the electric industry, although the largest output in any week of 1945 (4,614,334,000 kilowatt-hours in the week ended Jan. 13) was not quite as great as the all-time peak of 4,616,975,000 kwh in the week ended Dec. 23, 1944. Both in 1944 and 1945 the output declined from January to July; the 1944 curve rose thereafter to the high point mentioned, but in the third week of August, the 1945 curve dropped very sharply and declined still more until the end of November, being much below the 1943 and 1944 figures but above 1942. It rose somewhat in December, in which month the weekly totals ran about ten per cent below those in the preceding December.

A year-end statement by the EEI indicated that electric customers totaled some 34,000,000, having increased nearly 800,000 during 1945, and that about 150,000 farms were added to the lines of the private companies and 120,000 to lines of rural cooperatives, bringing the total of electrified farms to slightly over 3,000,000 out of 5,950,000. It gave the 1945 production of electrical energy by the entire industry, public and private, as approximately 221,000,000,000 kilowatt-hours, or 3 per cent less than the 1944 figure of 228,189,000,000 kwh. However, production of 229,328,540,000 kwh in the 12 months to July, 1945, was given as an all-time high. Gross revenue for 1945 was placed at about $3,000,000,000, much the same as 1944, while net income was estimated at $527,000,000, or 2 per cent above 1944. Construction expenditures in 1945 were reported as $225,000,000, with the prospect of double that amount in 1946.

The Office of War Utilities and its predecessors had sharply restricted increase of generating capacity in conserving it for war uses. Large concentrations of power were arranged at strategic locations, including the vast atomic energy laboratories at Oak Ridge, Tenn. (supplied by the Tennessee Valley Authority) and at Pasco, Wash. (supplied by the Bonneville-Grand Coulee system). Limited quantities of emergency capacity were also planned for. In the spring of 1945, the OWU authorized some 2,000,000 kilowatts and a substantial amount of other construction to alleviate the severe restrictions, replace worn-out equipment, and place the electric utilities in a better position to assist in industrial reconversion.

Shortly after V-J Day the OWU revoked its order that had established electric system interconnections and the standards on which electric power was to have been rationed when and if necessary. It was believed, however, that most of the interconnections ordered during the war would remain, excepting as some electric companies not under the jurisdiction of the Federal Power Commission might feel that interconnection across state lines, especially if for other than emergency use, would make them subject to FPC regulation. The FPC had granted exemptions in such instances for the war's duration plus three to six months.

FEDERAL POWER COMMISSION

Chairman Basil Manly of the FPC resigned effective Oct. 1 to become president of the Atlanta Gas Light Co., and former chairman Leland Olds became acting chairman. Manly's departure created a second vacancy on the FPC, Commissioner John Scott having resigned in June to resume law practice. President Truman appointed Harrington Wimberley, Oklahoma newspaper publisher, and Richard Sachse, former chairman (previously chief engineer) of the California Railroad Commission, to fill the unexpired terms of Commissioners Manly and Scott, respectively. Wimberley took office in October and Sachse Nov. 1. After considerable speculation concerning the chairmanship, Leland Olds was elected in December for the second time, and Nelson Lee Smith, former chairman of the New Hampshire Public Service Commission and member of the FPC since October, 1943, was made vice-chairman.

The FPC's financial report on the electric utility industry, covering 1937-1944, was issued early in December, 1945. It was based on reports from companies representing over 98 per cent of the assets, customers, and revenues of the entire privately owned portion of the industry. It showed that retirements of plant and equipment, plus adjustments of plant accounts to reflect actual legitimate investment, exceeded property additions by $90,000,000 in 1944, bringing the total plant account, undepreciated, to about $14,750,000,000. Reserves for depreciation, etc., increased in 1944 by more than $250,000,000, and the ratio of reserves to plant account increased to 19.1 per cent. The ratio of taxes to revenues was 20.3 per cent in 1944 as against 21.6 per cent in 1943. Average annual yield from bonds, based on market prices for selected utilities, was 2.96 per cent in 1944, 2.99 per cent in 1943, and 4.03 per cent in 1937. The EEI asserted that the return to investors in the industry was shown to be slightly higher in 1944 than in 1937 although the average charge for a unit of electricity was 15 per cent less, unit fuel costs were 22 per cent more, and taxes had increased 110 per cent.

A nationwide investigation of the natural gas industry by the FPC got under way in 1945, under the supervision by Commissioner Smith, with George Slaff as directing counsel. Public hearings for informative purposes were held in various parts of the country. Topics included gas reserves, production practices, extent and control of waste, state laws governing production, waste and conservation, interstate pipe lines, and utilization.

Exemption of the FPC from the Federal reorganization act, which had been contemplated during the development of that legislation, failed to materialize, although certain other quasi-judicial bodies, including the Interstate Commerce Commission, the Securities and Exchange Commission, and the Federal Communications Commission won partial exemption. Thus the FPC is in danger of losing its independence and of being placed under another agency or department, such as Commerce or Interior, some of the functions of which the FPC partially regulates, but this will not necessarily occur.

POWER "AUTHORITIES"

The Tennessee Valley Authority was reported to have produced more electrical energy in the 1945 fiscal year than any other integrated electric system in the United States. About 75 per cent was for war purposes. Electricity was distributed by 130 municipal and cooperative systems to approximately 600,000 customers. Net income was reported as nearly $18,000,000, or 27 per cent above the previous year. Two major dams—Kentucky and Fontana—were placed in operation, bringing the number of dams to 26.

At the dedication of Kentucky Dam, at Gilbertsville, Ky., in October, President Truman praised the TVA and the "authority" method of regional development, but emphasized that such development is for the people themselves to decide, and pointed out that in the Tennessee Valley state and local agencies, public and private, had joined with TVA in a two-way partnership.

The bill to establish a Missouri Valley Authority, introduced early in the year by Senator James E. Murray of Montana, pursued a leisurely course, marked by much controversy. In December the Senate Agricultural and Forestry Committee obtained an extension until March 15, 1946, for the submission of its report. Opposition included supporters of the Bureau of Reclamation (Interior Department) and privately owned utilities. Proponents claimed that, only by an overall agency covering the entire river basin, could the rivalries of public and private interests and of the Reclamation Bureau and the Army Engineers be overcome and a comprehensive and well coordinated development achieved.

A bill for creation of a Columbia River Authority, based on the Bonneville-Grand Coulee developments, was also under consideration in Congress.

Efforts were continued in 1945 by the city of Tucson, Arizona, to acquire the Tucson Gas, Electric Light & Power Co. from the Federal Light & Traction Co., which was required by the SEC to divest itself of that subsidiary. The Arizona Power Authority, created by the state legislature in 1944 to bring cheap Colorado River power to Arizona communities, sought to buy the Tucson standby plant and transmission lines serving other localities, and also the steam generating plant near Phoenix, owned by the Central Arizona Light & Power Co., together with lines emanating from it. The latter is stated to be the hub of an interconnected power system, and the Power Authority claimed that it must have this plant if it is to establish an integrated state system of power transmission.

SECURITIES AND EXCHANGE COMMISSION

The SEC dealt with many plans submitted by public utility holding companies for simplification of capital structure and limitation to integrated systems as called for by the Holding Company Act of 1935. It completed several important cases concerning such plans, including the General Gas & Electric Co., Utah Power & Light Co., Peoples Power & Light Co. and one of the three parts of a plan filed in July by the Electric Bond & Share Co., stated to involve the largest registered holding company system at present.

Chairman Ganson Purcell announced in November that sales of utility properties by holding companies as a result of the Holding Company Act had amounted to $4,347,219,587 in the period from December, 1935 to June 30, 1945; that $4,053,719,313 of this total represented properties sold to private investors and $293,500,274 represented sales to municipalities and other public bodies, the latter amount including $123,140,008 of sales to the TVA. He suggested that there would be a much stronger tendency toward public ownership except for greatly improved conditions in the electric and gas utilities resulting from Federal regulation. He pointed out that the operating companies now enjoy the benefits of cheap and ample credit, and claimed that the enforcement of the Holding Company Act had aided state utilities commissions to regulate more effectively.

On Nov. 15 the Supreme Court finally heard argument on the constitutionality of the so-called "death sentence" clause of the Holding Company Act. Four holding companies were involved in the cases that the Court took under review—the North American Co., the Engineers Public Service Co., the American Power & Light Co., and the Electric Power & Light Co. The first two had been ordered by the SEC to divest themselves of all but specified operating companies, under Section 11-b-1 of the Act, and the other two (which are parts of the Electric Bond & Share Co. system) had been ordered to dissolve, under Section 11-b-2. North American had lost a unanimous decision of the United States Circuit Court of Appeals in New York City on Jan. 13, 1943, since when its appeal had been delayed by lack of a quorum of the Supreme Court, owing to disqualification of various members who had previously represented the Government in litigation. The year ended without a decision being handed down.

An unusually large merger occurred in July when the New York Public Service Commission approved the absorption of the Brooklyn Edison Co. and the New York & Queens Electric Light & Power Co. by the Consolidated Edison Co., which thus serves four of the five boroughs of New York City with electricity, having previously served only Manhattan and the Bronx with electricity and gas. One condition of the merger was an electric rate reduction of $6,352,600 per annum; another was a reduction of over $52,000,000 in the plant account.

Public utility bond issues in 1945 reached a greater total than in any other year since 1936. There were 61 issues amounting to $1,838,509,000, according to year-end reports; this was nearly half of all bonds marketed during the year. The issues were almost all for refunding purposes. The largest financing was for the American Telephone & Telegraph Co., consisting of a $175,000,000 issue of 2¾ per cent 35-year debentures in July and $160,000,000 of similar 30-year bonds in September.

Public utility stock issues were reported as 28 in number and $120,850,000 in amount, 18 per cent more than in 1944 and nearly five times as much as in 1943.

Interest rates remained low. The $175,000,000 A. T. & T. Co. 2¾ per cent debenture issue in July was sold at 99.5599 to a banking syndicate which offered it to the public at par. In December a $75,000,000 issue of 2¾ per cent debentures of the Pacific Telephone & Telegraph Co. sold to bankers at 102.15, and $56,929,000 of 2¾ per cent first mortgage bonds of the Buffalo Niagara Electric Corp. brought 101.679. Thus the yields on these two large issues were less than 2¾ per cent.

GAS

Revenues of the gas utility industry in 1945 were reported by the American Gas Association as approximately $1,141,374,000, an increase of 3 per cent over the preceding year. Residential sales were stated to have risen 6 per cent over 1944, and industrial sales to have declined 4 per cent. In the latter part of the year industrial sales were about 10 per cent and total sales about 2 per cent less than a year ago. Natural gas revenues were given as $692,526,000 and revenue from manufactured and mixed gas as $448,848,000. Total customers increased 1.9 per cent during the year, to about 20,156,000. Total gas sales of 2,640,264,000,000 cubic feet in 1945 were stated to be the largest in the history of the industry.

Large rate reductions and refunds by natural gas companies were made in 1945. On Oct. 1, the Colorado Interstate Gas Co. filed a schedule with the FPC reducing interstate wholesale natural gas rates by $2,793,000 per annum; they were retroactive to May 20, 1942, owing to an FPC order of that period which was upheld by the Supreme Court on April 2, 1945. A refund of more than $8,500,000 was required. Another FPC order, affecting the Panhandle Eastern Pipe Line Co., was also upheld on April 2; reduced rates retroactive to Nov. 1, 1942 involved a refund of over $24,000,000 to customers in Michigan, Ohio, Indiana, Illinois, Missouri, Kansas, and Texas and an annual reduction of nearly $9,500,000, based on 1944 billing.

The question of electric and gas service both being furnished by a single company or affiliated companies came to the fore with a decision of the SEC on April 7 requiring the Union Electric Co., of Missouri to divest itself of the St. Louis County Gas Co. because of advantages of independent over combined ownership and operation of electric and gas utilities, as found by a study. This was followed on May 9 by a refusal of the New York Public Service Commission to permit acquisition of the Rockland Gas Co. by the Rockland Light & Power Co., on the score that the public interest would be better served by preserving independence of the gas and electric utilities of the area involved.

FEDERAL COMMUNICATIONS COMMISSION

The FCC announced on Nov. 30 that, following negotiations with the American Telephone & Telegraph Co., additional reductions in interstate telephone rates, estimated to save users over $20,000,000 a year, would become effective Feb. 1, 1946. The reductions affect toll rates for distances between 340 and 2,140 miles and also certain others under 40 miles. The Commission stated that in considering these reductions it was mindful of the tremendous post-war program facing the Bell Telephone System, including restoration of plant, expansion of rural service and the overall improvement and extension of service in line with developments in the art. This program, stated to call for some $2,000,000,000 of additional money, is expected to aid materially in the nation's reemployment and reconversion program.

LABOR RELATIONS

While the war was in progress, strikes of utility employees were negligible. Following V-J Day, much labor unrest developed, with demands for pay increases, some of which were adjusted only after strikes. One electrical strike was a four-day walkout of 22 locals of the Michigan Utility Workers Council (CIO) in plants of the Consumers Power Co.; it ended Oct. 22, after the intervention of Governor Harry F. Kelly, with a 13¢ hourly increase as against the union demand of 30¢ and the company offer of 10¢. Opportunity was left for future adjustments in line with changes in the national wage situation.

In Texas the Lower Colorado River Authority experienced a strike of part of its operating department employees in October which cut off electric service of a large area in the central part of the state. The strike was to force recognition of the International Brotherhood of Electrical Workers (AFL) as bargaining agent, but the LCRA maintained that, as a state agency, it could not make an exclusive labor contract, and dismissed the strikers.

Local transportation in New York City suffered a war-time "slowdown" for five days in June on the lines of the New York City Omnibus Corporation in a protest by the Transport Workers Union (CIO) against the company's slowness in meeting demands for higher wages and improved working conditions. Mayor LaGuardia denounced the slowdown technique as dishonest and a menace to the good standing of organized labor. Similar tactics were, however, employed in October on the lines of the affiliated Fifth Avenue Coach Co.

Several strikes occurred late in the year on various bus lines in New York City, including the Staten Island Coach Co. and the Green Bus Lines, Inc. (Borough of Queens) with brief sympathetic work stoppage on other Queens lines under the guise of sickness. The Amalgamated Association of Street, Electric Railway, and Motor Coach Employees (AFL) was involved. A strike of the same union on lines of the Eastern Massachusetts Street Railway Co. affected street cars and buses in 70 towns and cities for three days in October and resulted in temporary seizure of the company's facilities by the state of Massachusetts. It was settled by bonus payments of nearly $500,000 to some 1,900 employees, in lieu of wage increases.

The Amalgamated also went on strike in Washington, D. C., Nov. 6 on the street-car and bus lines of the Capitol Transit Co. but went back to work the following day for a 14-day truce pending negotiation of demands for an hourly increase of 30¢. On Nov. 21 another walkout occurred, despite pleas of union officials to submit the demands to arbitration. The contract had not expired. The strike ended after President Truman had called the action "a blow at the sanctity of labor agreements" and ordered the Office of Defense Transportation to take over the operation of the lines.

TELEGRAPH AND TELEPHONE STRIKE THREATS

At the end of the year employees of the Western Union Telegraph Co. in the metropolitan New York district who belonged to the American Communications Association (CIO), threatened to strike as a result of a decision of the National War Labor Board announced on Dec. 31, alleged to represent a reduction of wage increases previously granted by a regional board, while revising upward an earlier award of the national board for the Commercial Telegraphers Union (AFL) operating in other parts of the country. The strike took place in mid-January, 1946 and continued for several weeks.

Another year-end strike threat, of possibly national proportions, lay in the efforts of the Western Electric Employees Association to cause a sympathy walkout by the affiliated National Federation of Telephone Workers (independent), which could tie up long-distance service on the Bell system. The WEEA demanded a 30¢ hourly wage increase, as against a company offer of 15¢.

For six days in November nearly 9,000 long-distance operators, members of the Illinois Telephone Traffic Union, employed by the Illinois Bell Telephone Co. outside of Chicago, were on strike because of a WLB award of a $4 weekly increase instead of $6 as demanded. A nationwide strike of the NFTW was threatened on Nov. 24, but on that day the walkout ended with an agreement between company and union officials to make the additional $2 increase effective by February 1, 1946, and to discuss further post-war increases.

These labor troubles, though involving but a minor part of total utility operations, emphasized the special problem of determining fair compensation for labor in public service industries subject to price regulation without coercion on either side, and without depriving the public of essential services.

ATOMIC ENERGY

The vast wartime development of atomic energy for terrific destruction has excited much discussion of its possibilities for constructive power generation. Extravagant prophecies have been made, but no practical application in this field seems probable for years to come, and then in special circumstances, according to the present outlook. The scarcity of uranium, the tremendous installations and techniques for its utilization, and the necessity of great protective measures and strict governmental control are obstacles against such use; and the cost of coal or of water power is such a minor element—less than one mill per kilowatt-hour in some modern steam plants—in the total cost of delivered energy, that existing steam and hydro plants seem likely to live out a normal life without great danger from "atomic" competition.

WATER SUPPLY

By E. Sherman Chase
Metcalf & Eddy, Boston

GENERAL

The end of hostilities in Europe and in the Pacific had little effect upon the water supply industry of the United States. Continued shortages in labor and materials, even with the termination of warfare, retarded the consummation of post-war projects for water works betterments. A few notable exceptions occurred, and a few projects allied with the war effort were carried out. The technical press published numerous papers dealing with water works subjects but, on the whole, no startling development occurred.

Unlike the newer fields of technology, the art and science of water supply engineering seldom shows spectacular progress. Only four major developments in the water works field have occurred during the past century and a half. These developments were (a) metal pressure pipes, (b) power-operated pumps, (c) water filters, and (d) chlorine technique for disinfection.

COMPLETED PROJECTS—CHICAGO

At Chicago the partially completed filter plant was put into operation in 1945. Construction of this plant, started prior to the war, was greatly delayed because of restricted supplies of labor, materials, and equipment. Only the preliminary treatment features of the plant were sufficiently finished to permit their use when the plant was started. The treatment afforded consisted of pre-chlorination, coagulation, clarification, and post-chlorination pending the completion of the filters. The plant will have eventually a capacity for purifying 500,000,000 gallons of water daily and will thus be the largest water purification plant in the world. The plant supplies about 54 per cent of Chicago's population, and when finished will have cost about $24,000,000.

The water works of North Chicago, a suburb of Chicago, were increased in capacity from 2,400,000 gallons per day to 4,500,000 gallons by the construction of a second intake from Lake Michigan, additional filters, and accessories. In 1901, North Chicago had only 250 voters, and its water works had a capacity of 100,000 gallons daily.

PHILADELPHIA

Philadelphia began a program of water supply improvement. The supply of this city is derived after filtration from the Schuylkill and Delaware rivers. Increasing pollution of the river sources, deterioration of pumping and filtration facilities, and inadequacy of pipe lines have necessitated major betterments in all these particular parts of the system. Although the whole program is far from completed, approximately $4,000,000 has been spent. The total eventual expenditure is estimated at about $30,000,000.

MOBILE

In the South, Mobile, Alabama, completed a 20,000,000-gallon per day filter plant near the end of 1944. This plant was required because of increasing pollution of the sources of supply and the increasing population of the city with corresponding increases in demands. The cost of the filter plant, raw water reservoir and new mains was approximately $2,250,000.

SAN DIEGO

Across the country at San Diego, Calif., the construction of a 50,000,000-gallon daily aqueduct, some 71 miles long, was started the latter part of 1945. The increase in population, together with the requirements of the expanded naval and industrial establishments at San Diego, placed an unprecedented demand on the nearby water sources. This new aqueduct, to be constructed under the auspices of the Navy, will tap the aqueduct of the Metropolitan District of southern California and will convey Colorado River water to the recently completed San Vincento impounding reservoir of San Diego. This reservoir is located about 20 miles from the city.

The principal items of this project will include a 1,400 acre-ft. regulating reservoir near the Metropolitan District's aqueduct; seven concrete lined, horse-shoe shaped tunnels (6 ft. x 6 ft.), having a total length of 4.3 miles; 1.8 miles of high head 48-inch steel pipe across river valleys; two miles of 96-inch 12.2 miles of 72-inch, 21.9 miles of 54-inch, and 28.2 miles of 48-inch reinforced concrete pipe. It is expected that delivery of Colorado River water will begin in the summer of 1947. The total estimated cost is $17,500,000.

In addition to the navy-sponsored aqueduct the city will construct a new pipe line from the San Vincento reservoir, a modern 60,000,000-gallon daily water treatment plant, and a 20,000,000-gallon regulating reservoir. The cost of these improvements is expected to be about $6,000,000.

SOURCES OF SUPPLY

During the year, the Committee on Rainfall and Yield of Watersheds of the New England Water Works Association published valuable reports upon rainfall and yield in New England.

A noteworthy paper upon the maintenance and operation of a large watershed by Wendell La Due, vice president of the American Water Works Association, was published during the year. In this paper, La Due describes the measures taken to administer several thousand acres of drainage area tributary to the impounding reservoir of the water supply of Akron, O. Fruit orchards and vineyards were laid out on part of the area, and as high as 25,000 bushels of apples have been harvested in a year and several hundred tons of grapes. Originally a city-operated project, the orchards and vineyards are now rented to a horticulturist under a rigid contract.

In addition to the orchards, the city has put into effect an extensive program of reforestation, largely of evergreens. Since 1922, over 600,000 trees have been planted at an average cost of $35 per 1,000. Other activities involve the operation of a maple sugar "bush" which produces 300 to 650 gallons of sirup per year. Sheep and cattle are also raised upon certain portions of the area.

WATER SUPPLIES DURING THE WAR

War conditions both at the front and in the cities with war industries resulted in a multitude of special problems. The necessity for expansion of water facilities in municipalities affected by the war boom has already been referred to.

At Detroit excessively high peak daytime demands, necessitated the use of a former raw water reservoir, 40,000,000 gallons capacity, for storing water filtered during the night for delivery during the day. At Louisville, the increased demand for cold water for cooling purposes at alcohol distilleries so depleted the ground water sources used for this purpose that filtered river water from the city's supply was used directly in the colder months. Cold city water was also used to recharge the ground water sources. At Columbus and Lima, O., extreme demands and drought conditions seriously impaired the adequacy of the normal public supplies, and recourse was had to emergency supplies from ponds, abandoned stone quarries, and other sources. At Columbus, the filter wash water was conserved by pumping back through the plant.

Early in the war a threatened water shortage at Naugatuck, Conn., owing to extraordinary demands by war industries, was averted by installation of meters on practically all services. Metering is estimated to have brought about a 60 per cent reduction in domestic water consumption, thus making available an additional amount of water for the war industries.

Increased army and naval needs at certain islands off Portland, Me., also early in the war, resulted in the laying of several thousand feet of submarine water mains under difficult conditions. It is believed that portions of the mains were laid at greater depths than mains had ever before been placed in trench excavated under water.

WATER SUPPLIES IN THE WAR AREAS

In the war areas, the problems related to water supply were varied and difficult. For shore assaults water was carried in five-gallon multi-purpose cans. In areas behind the front 35-gallon Lyster bags were used with ampoules of chlor-dechlor for sterilization. For turbid waters, a hand kit was developed consisting of a wood pulp and asbestos filter capable of filtering two gallons per minute. For combat troops a supply of one gallon per capita per day was the goal and for troops at bases, 15 to 20 gallons. At rear areas, portable water purification units were used consisting of a pump, coagulation and settling tank, pressure filter, chlorinator and storage tank. In the Pacific area on small islands and atolls, distilling equipment for salt water was used.

On Guam, prior to the war, the water system consisted of half a dozen spring-fed reservoirs on the hills and cast-iron transmission mains. The reservoirs and mains were badly damaged by our forces during the fighting. The Seabees took over the task of repairing reservoirs, mains, and pumping stations, and within two months after the first assault wave the major part of the water utility of the island was functioning. Later the Seabees constructed a large tunnel to collect fresh ground water.

CROSS-CONNECTIONS

Another water works problem of long-standing but one emphasized by the war, was that relating to cross-connections between potable supplies and unsafe supplies. A number of instances occurred where cross-connections at pier heads between fire systems on ships and the potable water supply system at the dock resulted in the pollution of the potable supply and in several cases water-borne outbreaks of disease followed. A special committee under the auspices of the Office of Scientific Research and Development made a study of the problem and presented a report upon the subject. This report gave four methods for prevention of backflow of polluted water into systems of potable water, namely (1) physical separation with air gap, (2) vacuum breakers, (3) backflow preventer with positive pressure relief, (4) double check valves on six-inch or larger lines. Complete separation is the desirable goal but impossible of immediate achievement.

During the year, the American Water Works and Electric Company adopted new rules and regulations relative to cross-connections. These are given in an article by John H. Murdock, Jr., counsel for the company, published in the May, 1945 issue of the *Journal of the American Water Works Association.* The object of these rules is to bring about the elimination of all cross-connections between the water supplies controlled by this company and unapproved sources.

A particularly vigorous campaign has been waged for some years in Los Angeles to eliminate or control cross-connections. In addition to the more common type of double check valve (Factory Mutual), certain manufacturing companies have developed checks with positive preventive devices which preclude backflow.

With the nearly complete abolition of major water-borne outbreaks of disease resulting from contaminated water supplies, more and more attention is being and will be paid to the prevention of localized contamination within distribution systems. Such contamination may result from cross-connections with polluted supplies as previously discussed or through backflow from faulty plumbing fixtures.

CHLORINATION

Continued research was carried on and experience extended during 1945 in connection with chlorination of water. Further information was gained as regards the use of chlorine dioxide. Experience with this chemical was both favorable and unfavorable. From the Division of Laboratories and Research of the New York State Department of Health came an improved method for determining true, false, and chloramine residuals.

McCarthy, of the Lawrence Experiment Station of the Massachusetts State Department of Public Health, reported on further research upon the use of chlorine dioxide for the disinfection of water (*Jour. New Eng. W. W. Assoc.*, V. 59, p. 252). He concluded that chlorine dioxide treatment can result in satisfactory removal of tastes and odors and should have a beneficial effect on distribution systems by preventing pipe slimes. He pointed out that chlorine disinfection must be separated from odor control and should be completed before the application of chlorine dioxide, otherwise high residuals would be needed. Water treated with chlorine dioxide will carry high chlorine residuals without taste. Operating costs with chlorine dioxide appear to be somewhat higher than with superchlorination and somewhat less than with activated carbon.

CORROSION CONTROL

Cathodic protection of steel standpipes against corrosion of interior surfaces continued to receive attention from water works men and new installations were made.

The effectiveness of chemical treatment of water supplies to reduce their corrosive effect upon metal pipes underwent further study. An exhaustive investigation of corrosion control in potable water systems at military posts was reported upon by Major Rolf Eliassen (*Water Works and Sewerage*—vol. 92, p. 187). Eliassen concluded that the method showing the greatest promise at present was the feeding of small quantities of chemicals which form films of protective coatings on metallic surfaces. These chemicals vary in character, and some of the polyphosphates are useful as well as the earlier used chemicals such as lime, soda ash, and sodium silicate.

REHABILITATION OF MAINS

One of the effects of the corrosive action of water is the rusting and tuberculation of water mains. In recent years, more and more water utilities have undertaken the cleaning of mains and the lining of them in place with cement mortar.

For smaller mains, the Tate process has been adopted at numerous places. At Charleston, S. C., several thousand feet of mains have been cleaned and lined, with materially beneficial results. Particularly important was the restoration of the carrying capacity of old pipes.

For lining large diameter mains another method is employed. Cleaning is done in the usual way after which cement mortar is applied by a special machine developed by the Centriline Corporation. This process may be described in simple terms as "buttering" the mortar to the walls of the pipe as compared to "squeezing" in the case of the Tate method.

At Wichita, Kan., several thousand feet of 42-inch and 48-inch cement-lined cast iron pipe, whose carrying capacity had been materially reduced by growths of slime, were cleaned during 1945. As a result of these operations, the capacity of the pipeline was increased about 50 per cent. Previous to the cleaning operation, heavy applications of chlorine were tried, and, while helpful, were too slow in improving pipe capacity.

LEGAL PRONOUNCEMENTS

On May 9, 1945, the Public Service Commission of Wisconsin rendered a decision in a rate action brought by the municipal water department of Menasha. This decision is noteworthy in that it: (1) predicated a 5 per cent return on city property as part of the earnings, (2) ruled that a rate structure should be based upon capacity cost of the plant required to provide each class of service and not upon average cost of furnishing water, (3) refused the water utility permission to adjust its rate schedule by reducing the charge for public fire protection and increasing the rate to industrial consumers, (4) continued the policy of requiring an adequate charge for private fire protection service.

In June 1945, the Supreme Court of Ohio rendered a decision to the effect that the real and personal property of the City of Cleveland, Division of Municipal Transportation, was not exempt from taxation. As a consequence of this decision, Ohio County auditors have been requested to appraise and place upon the tax duplicate the property of the various municipally-owned and operated water systems.

EMERGENCIES

Early in 1945, an ice jam and flood conditions in the Susquehanna River caused the flooding of pumps and filters of the water company's plant at Columbia, Penn. This condition resulted in the nearly complete cessation of normal activities in the community until emergency pumps and purification equipment could be installed. This incident illustrates the indispensable part played by water supply in the modern world.

On July 28, 1945, a ten-ton army B-25 bomber crashed into the Empire State Building 915 feet above street level. Although falling fragments of the plane ruptured an eight-inch water main riser, the use of other risers and temporary repairs to the injured main permitted the firemen to put under control in less than 40 minutes the fierce fire caused by the crash.

MISCELLANEOUS

The application of electronic equipment to water works operation is a relatively new development. Such application relates to the measurement and control of pH of treated waters, to the transmission of flow measurements and water levels, and to analytical devices. The possible use of electronic impulses and vibrations for flocculation and for sterilization have been suggested.

The subject of application of sodium fluoride in minute quantities to public water supplies as a means of combating dental caries in children continued to receive much attention during the year. Grand Rapids, Mich., is one of the few municipalities where this measure has been put into effect.

Some water supply reservoirs have suffered infestations by such pests as midge fly larvae and crustacea. To combat midge fly larvae, DDT was added to the water in two clear-water reservoirs of the Alexandria Water Company at Alexandria, Va. in August 1945. The dose employed was 0.01 part per 1,000,000 and was applied uniformly over the surface of the reservoirs. Three days after the application, the larvae disappeared. This use of DDT raises numerous questions as to the problems which may result if this material is used in public water supply reservoirs. Research is needed to provide the answers.

While profit sharing in industrial establishments is not new, employee profit sharing in a municipally-owned and operated utility is new. At Waukesha, Wis. the Water Utility Commission has put into effect a Salary Savings Plan for employees. Such employees are not covered by Federal Social Security, and the Waukesha plan was devised to provide equivalent protection. This plan consists of a systematic purchase of retirement annuity insurance with the Utility Commission contributing two dollars for every dollar contributed by employees.

The Committee on Survival and Retirement Experience with Water Works Facilities began the publication, in the *Journal of the American Water Works Association,* of a mass of data relating to the actual life and mortality experience of water works property in many cities. These data will be of great value in all matters relating to the financial aspects of water works operation.

STREET AND HIGHWAY TRAFFIC

By Ernest P. Goodrich
Consulting Engineer, New York

GENERAL

An experienced estimator believed that passenger car registration totals on Dec. 31, 1945 would be approximately 25,100,000 and motor truck registrations 4,550,000, or a combined total of 29,650,000. Increase in intercity automotive traffic during the first year after the war will amount to 38 per cent over the 1935-39 average and 6 per cent in excess of such travel in 1941, according to estimates reported by the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission.

VEHICLE CONDITION AND USE

One car in seven on the highways had poor brakes, brakes that probably could not stop a car in an emergency. This was the average shown by checks on 1,806,145 cars in the United States and Canada during the six weeks of the brake-check program sponsored by the International Association of Chiefs of Police. More than 5,000 police chiefs and sheriffs directed tens of thousand of traffic officers who applied the brake check. Of nearly 2,000,000 cars checked, 263,441, or 14.6 per cent, could not meet one simple requirement; they failed to take hold before the brake pedal came within an inch of the floorboard.

It was estimated that travel in private automobiles totaled 275,000,000,000 passenger miles, compared to 96,000,000,000 miles by steam railroads, 57,924,000,000 miles by motor buses, 36,400,000,000 miles by electric railways, 28,267,000,000 miles by Pullman cars, and 2,230,000,000 miles by domestic airlines.

Gasoline rationing and the Federal speed limit of 35 miles per hour were lifted in the late summer. Conservation as a patriotic duty largely lost its appeal.

Drivers of the nation were warned that neither they nor their cars were in shape to indulge in a post-war speed spree without piling up the biggest traffic toll in the country's history. The warning came from a joint committee on post-war speed control that represented 14 national organizations, officials, and others interested in traffic safety.

The average age of passenger cars was found to be more than eight years, as compared with an average of four and one-half years in 1940. Both drivers and pedestrians have become accustomed to top rural speeds of 35 or 40 rather than 50 or 60.

ACCIDENTS

In comparison with 1944 a disheartening increase took place in traffic accidents and deaths. The latter have been estimated at 41,250 for the full year of 1945. A sudden return to pre-war speeds produced an accident toll during the last five months of the year far greater than the pre-war peak of 40,000 deaths and 1,400,000 injuries in a single year. There were 2,520 pedestrian deaths during the first quarter of the year, which paralleled the pattern for 1944. In May traffic deaths increased two per cent but went down three per cent for the first five months of the year. In the first four months of the year travel was up six per cent.

Seventeen of 40 reporting states had cut their traffic death toll in May; 19 had increases and four had no change from May 1944. Twenty-one states reported decreases, 17 reported increases, and two reported no change for the five-month period in 1945 as compared with 1944.

Pedestrian accident locations in Wilmington, Del. were stencil marked on the streets and brought up to date weekly. A white circle with the letter "P" designated a pedestrian injury. A 24-inch yellow circle with a cross in the center indicated a fatal accident involving either a pedestrian or motorist. These methods proved valuable in helping to educate Wilmington drivers and pedestrians to safer practices.

PARKING

Four hundred and forty-nine cities throughout the country have installed parking meters, which have assisted materially in solving major parking problems.

A Circuit Court of Oregon held that Portland's parking meter ordinance was a valid police power regulation. Out of $1,121,865.16 collected from parking meters, $193,266.78 was spent on the installation and upkeep of the devices, with the balance of $928,598.38 expended for general traffic purposes.

Burlinghame, Calif. planned publicly owned and operated parking areas in the city's congested areas to remedy problems of heavy traffic flow, relatively narrow streets, and limited parking space. The project was to be financed, at least in part, by creating an assessment district within the commercial zone, property owners within the district assuming the cost of improvements.

Lewiston, Me. purchased a 250-square foot lot in the business district to use as a city-owned off-street parking lot. About $2,000 was spent to make the lot usable. Parking is limited to three hours and is free of charge.

A planning consultant was hired by

Berkeley, Calif. to assist in preparing a plan for the development of adequate off-street parking facilities adjacent to the commercial center of the city and at the same time develop a master street and highway plan, and park and recreational plans.

Underground parking has been tried in a few instances. Notable among them is the four-level garage under Union Square Park in San Francisco. Built at a cost of $1,500,000, it accommodates 1,700 automobiles. Charges are 25 cents an hour, 75 cents overnight, and $12.50 per month.

TREND OF UNDERGROUND PARKING AND GARAGING

A survey of traffic conditions in 24 of the nation's largest cities conducted by the Commerce & Industry Association of New York revealed that the trend in parking was underground. A considerable number of them provided underground off-street parking facilities. It was also revealed that opinion is equally divided on the use of parking meters and that a majority of them have established some form of municipal control to coordinate the activities of various city departments as to traffic matters.

Detroit voted by referendum to construct a 1,000 car garage beneath a city street to be municipally operated. The construction of a 2,700 car garage underneath a park was considered by Los Angeles. Cleveland permits the parking of 700 cars in an underground exhibition hall when the place is not otherwise occupied. Every city surveyed, with the exception of Memphis, admitted serious traffic problems. Twelve cities reported that they maintain some kind of municipal traffic control commission.

CENTRAL PARKING PLAZA AT HARTFORD

A super parking plaza was recommended for Hartford as a means to help stabilize central real estate values and add to the attractiveness of the city's shopping and business area. Three inclosed floors and a roof would care for 2,500 cars at one time, and could be extended for a total of 3,300. Up to 10,000 cars a day could be taken care of. Small, lightweight deluxe trains with electric battery motors were considered the most logical means of getting the public to and from central places of business. An attendant could take a patron's car at each motor entrance and deliver it at an exit. Cashiers located there would eliminate the dangers of having the patron walking about the parking area. Connections to the horizontal walk and tramway were to be provided by escalators to all floor levels above the ground floor. At street level a main waiting room was proposed with rest rooms and concessions.

TRAFFIC PLANS

A comprehensive traffic report was submitted to the city of Salem, Ore. A plan was suggested whereby main arteries linking the downtown section with residential areas would form a pattern similar to the spokes of a wheel. With Salem's wide streets, it was pointed out that parking along principal streets should be controlled or prohibited, permitting at least four moving traffic lanes. The elimination of angle parking was also recommended.

Cities from 25,000 to 50,000 population should have a full-time equivalent of at least four traffic officers for each 10,000 population, according to National Safety Council studies. A strong plea for off-street parking facilities was made. Merchants and businessmen were called upon to recognize the importance of adequate parking facilities.

SAFETY MEASURES

A serious pedestrian accident situation was solved in San Diego, Calif. by forcing employees to use concrete pedestrian overpasses at three large airplane plants. After considerable education of workers through plant loudspeaker systems, repainting of all signs and crosswalks and direction signs to the overpasses, an ordinance was adopted by the City Council making it unlawful to cross this roadway at other than a crosswalk or overpass.

Off-street bus loading and unloading lanes proved valuable at the entrance to the United States Signal Corps, Arlington Hall installation outside of Washington. Turnouts were constructed by Arlington County and fences were erected to keep crossings to the marked crosswalk. For night guidance, a controlled signal and a 100-lumen sodium vapor lamp were placed.

It was estimated that traffic snarls, particularly in mid-town Manhattan, were costing merchants and trucking concerns more than $1,000,000 a day. Fines for illegal parking were levied in an effort to remedy the situation. Parking on many streets was prohibited or strictly regulated.

A modern fully flexible traffic control system was installed on one avenue in Detroit which averages 40,000 vehicles a day, with 2,000 in one direction at peak hours. General Electric multi-dial secondary controllers were used at 18 intersections. These controllers have two dials for changing the percentage division as traffic varies at each intersection—when traffic volume increases on one street or when an exclusive pedestrian interval is needed, or when it is advisable to provide more pedestrian "go" time on that street. Intersections where frequent changes in traffic volume occur can be studied to determine the regularity and frequency of such changes. The required time cycle splits on the dial can be pre-set. The change from one dial to another is accomplished electrically and can be done with a manual switch but is usually automatically taken care of by time switches or a program controller. The remote cycle change feature allows three different system-time cycle lengths. A special G-E program device permits automatic use of any combination of these features which can be set up for different combinations each day of the week for 12 weeks in advance. Changes can be set to occur at 12-minute intervals. All controllers are connected to a centrally located master controller. Multi-dial controllers are also useful for fluctuations in pedestrian volume as at school crossings. The "walk" cycle can be lengthened or shortened according to pedestrian traffic in the same manner as for car control.

Safety experts, businessmen, employers, and thousands of passengers lauded Milwaukee's mid-block bus stop plan on the city's main business thoroughfare. It has successfully survived two years' tests. Under this plan, bus riders board and leave buses at mid-block curb stops with more convenience and safety than at congested intersections. All other vehicular traffic on the street was expedited. Travel time for users of both buses and street cars was reduced. The number of downtown accidents decreased because the new system reduced congestion at street corners. Inquiries from various parts of the country indicate that many larger cities may follow Milwaukee's example.

STREETS AND HIGHWAYS

In December 1944, Congress passed the Federal-aid Highway Act, which amended the Federal law so as to recognize the needs of urban highway development. The law makes Federal-aid funds available for projects in urban areas, and authorizes the designation of a National System of Interstate Highways which will be a network of limited mileage connected and penetrating the major centers of population. These far-reaching changes in national policy were the result of ten years of research carried on through the state highway planning surveys.

Late in 1943 the Traffic and Operations Department of the Highway Research Board appointed a project committee to study origin and destination survey techniques. Their 1945 report briefly reviews the various methods used, and describes in some detail the results obtained.

Enough study has been made to show beyond doubt that data collected in good origin and destination studies are necessary not only in locating and designing new facilities properly but also in providing more efficient use of existing street and parking facilities.

Studies by the District of Columbia Department of Vehicles and Traffic indicate that the use of Washington's major streets, especially in the downtown section, reached the saturation point just prior to the war. Careful analysis of the various factors involved lead to the estimate that within five years traffic will have again reached that peak. The Department therefore prepared and submitted to the Board of Commissioners a program for expanding and perfecting the traffic control system, to be completed within that five-year period.

One of the most important steps provided for installing additional signal faces at each controlled intersection so that there will be a signal on the far left corner as well as the present signal on the far right corner. Thus if one signal is hidden by a large truck or bus, a driver would still be able to see the other signal. Moreover, a pedestrian will always have a signal directly in front of him. In many ways this is of the greatest advantage since it now is frequently difficult for a pedestrian to determine when it is proper to cross.

Another important item intended primarily to aid the movement of traffic in the congested district recommends installation of a central control signal system to vary cycles and coordinate synchronization of lights to meet varying conditions at given points.

It was proposed to replace or renew all present regulatory, warning, or directional signs and route markers with durable attractive signs on metal posts. Neon "one-way" signs, having proven very effective in directing traffic on streets which are restricted in rush periods, it is proposed to install them on all streets where the part-time one-way restriction applies. Pedestrian barricades, used to prevent pedestrians from crossing the streets at off-set intersections or other hazardous locations, were found very effective.

TRAFFIC DEVELOPMENTS IN CHICAGO

The former Lincoln Park area in Chicago, cut up by the many winding drives into small areas of little recreational use is a thing of the past. Every available space has been made usable by the elimination of many of the drives that formerly traversed these areas. At the same time, the new roadways thus provided are so planned and constructed that two types of drives are obtained: one type for the through traffic motorist whose main interest is a convenient and ready passage through the Park, and the other type for the pleasure and recreation seeker whose main interest is in the Park's many recreational facilities and attractions.

The new express drive utilizes the greater part of the area formerly traversed by Beach Drive and runs parallel and close to the shore of Lake Michigan. The roadway is 100 feet wide, of a nearly straight alignment, no curves having a radius less than 4,000 feet, and with all access and egress points at grade separations. The drive is composed of eight wide traffic lanes that may be divided into four separate roadways of two lanes each by means of capacity-providing divisional fins. Without the use of this remarkable invention, a roadway of 170-foot width would have been necessary to accommodate the known traffic volume. With its use, a roadway of 100-foot width was constructed which amply provides for the heavy traffic volumes carried. The result in savings is tremendous, considering what the estimated costs would have been had the 170-foot-wide roadway been constructed. Such items as increased right-of-way, paving, more extensive overpasses, bridges, light maintenance, cleaning, etc., would have made the cost of construction almost prohibitive, yet the added cost of the capacity-providing fins was barely one-half of this cost by comparison.

The capacity-providing divisional devices consist of three parallel lines f fins running longitudinally in the oadway and arranged so that by the aising and lowering of each parallel ow, the roadway may be separated nto many combinations, according to raffic requirements.

Each line of fin consists of a series f movable units, each unit of which s made up of a structural steel box pproximately 20 inches wide, 16 nches deep, and 25 feet long. This is laced in a trench so that in the lowred position its top is flush with the djacent roadway surface. By means f hydraulic jacks, these fins are raised ight inches above the roadway surace, thus producing a continuous barier between the traffic lanes. Since he jacks are of the double acting ype, the fins may be raised or lowred as desired.

When traffic is directed to the Centeral Business District, the east line of ns is raised, thereby separating the oadway into six lanes for southbound raffic and two lanes for northbound raffic. In the evening rush period, when the prevailing traffic is directed way from the Central Business Distict, the west line of fins is raised hereby, separating the roadway into ix lanes for northbound traffic and wo lanes for southbound traffic. Beore and after the morning and eveing rush periods, termed the normal eriod owing to the even balance of ows, the center line of fins is raised o separate the roadway into equal arts. The raising and lowering of he fins is controlled by the operation f switches from control boxes located t the two extremities of the system.

Each parallel line of fins is broken own into divisions, each division beg provided with sump tanks, a umping station, and the hydraulic ping to the jacks for the fins in its vision. Each division is also conected to the adjacent division by a ystem of electrical controls, similar n principle to a progressively operted stop-and-go light system for connuity of control and operation. All n units in each division rise simulaneously in approximately 30 seconds.

TRUCK TERMINALS

The Port of New York Authority sold $7,500,000 worth of bonds to provide funds for the construction of the Authority's proposed Manhattan and Newark Union Motor Truck Terminals. Construction of the terminals is scheduled for completion by January 1947.

The Manhattan Motor Truck Terminal to be built at a cost of $4,850,000 will be 1,000 feet long and 175 feet wide, with a daily capacity of 2,000 tons. In Newark, the 2,500-ton truck freight station will cost $2,650,000 and will be 1,100 feet long and 200 feet wide. The difference in the cost of the two terminals, which are almost identical in size and design, results from the necessity of providing parking space on the roof of the Manhattan terminal for loaded trucks and trailers. This type of roof construction is necessarily costly.

SIGNS, SIGNALS, AND MARKINGS

The American Association of State Highway Officials prepared a set of design standards for use on the national system of interstate highways which will include heavily traveled routes in all sections of the country and, for the first time, extended into and through urban areas, permitting the expenditure of Federal funds for the relief of city street congestion. These standards are made in terms of peak-hour traffic determined as a basis for design and to accommodate the thirtieth highest hourly traffic density of the year.

The system provides for a mixed traffic of passenger automobiles, motor buses and motor trucks, and tractor-trailer and semi-trailer combinations of a volume of each of the constituent elements estimated to be that which will exist 20 years from the date of construction.

Where state laws permit, control of access is to be obtained on all new locations and on all old locations wherever economically possible. Where railway operation involves two or more mainline tracks, separation should be provided regardless of traffic volumes on the interstate highway.

Where the railway operates six or more regular train movements per day on a single track, separation of grades may be justified regardless of traffic volumes on the interstate highway.

For a design traffic density of 3,000 or more on an interstate highway, every effort shall be made to eliminate all cross traffic at grade. Where cross traffic at grade is not eliminated, traffic signal control installations, channelized intersections, or stop control on the crossroads are to be provided. Design speeds are:

Rural Sections	Miles per Hour	
	Minimum	Desirable
Flat topography	60	70
Rolling topography	50	60
Mountainous topography	40	50
Urban Sections	40	50

All curves sharper than one degree shall be super-elevated. All curves sharper than two degrees shall be designed with approach transition curves. The following maximum curvatures shall be used as consistent with design speeds:

Design Speed (m.p.h.)	Degree of Curvature	
	Maximum	Desirable
70	4	3
60	6	5
50	9	7
40	14	11

The maximum gradients preferably shall not exceed 5 per cent and in any case shall not exceed 6 per cent. On short lengths only, gradients of 7 per cent may be used.

Where the traffic density per lane is less than 200, the surfacing or pavement shall be designed for 11-foot lanes. Where the traffic density is 200 or over, the surfacing or pavement shall be designed for 12-foot lanes.

In urban areas all surfacing or pavement shall be designed for 12-foot lanes. Where the traffic density is 800 or more, a divided highway facility is to be constructed.

The width of median strip shall be as follows:

	Width in Feet	
	Minimum	Desirable
Rural	15	40
Urban	4	12

Curbs or other devices may be used where necessary to prevent traffic from crossing the median strip.

The right-of-way for rural highways of the following widths is to be either purchased or placed under public control through easement or other means:

	Width in Feet	
	Minimum	Desirable
Two-lane highways	120	220
Divided highways	150	250

Sidewalks or safety walks are to be included on structures wherever the pedestrian traffic justifies.

In peacetime, good maintenance of traffic guide signs would have offset deterioration, but during the war years material for the manufacture and repair of signs was restricted, and in some cases was unobtainable. Lack of manpower caused many agencies charged with maintaining the signs, to reduce or discontinue their operations. With the long-term trend of highway travel on the upgrade, traffic and safety experts have recognized the need for sign reforms. The Public Roads Administration estimated that in 15 years vehicle mileage will be double that of 1940.

Numerous advances in the design and illumination of route markers and of danger and caution signs, especially those using symbols, have been made, but destination, location, and directional guide signs have not kept pace with these advances. Sometimes the spacing between letters and names of places is inadequate for good legibility, or too many names crowded on the sign, or the lettering is too small. Often, poor placement of the sign reduces its effectiveness, even though its design may be good. The commonest fault and perhaps one that causes the most accidents, confusion, congestion, and annoyance is that of placing the sign too close to the point where the drivers response must be completed, as in the case of intersections where a change in direction is indicated but the sign's message is read too late to allow for proper braking and turning.

Most directional signs are not illuminated and much of their visibility and legibility is lost at night and in foggy and rainy weather. The headlights of automobiles illuminate reflecting signs, but the area of headlight candlepower high enough to produce the desired effect is restricted. Deterioration of the reflecting quality of signs and other types of material also means loss of effectiveness of traffic signals. Silhouette signs and those illuminated by floodlighting or by a fixture above the message require constant attention and maintenance to keep them effective.

A commercial device useful in laying out channelization patterns and other complicated road marking work, especially at curves, was developed. There are numerous advantages of this device. Among them are 1. it defines lines to the natural movement of drivers,—no matter how complicated; 2. saves time in laying out work, particularly at curves; 3. reduces traffic delays, owing to the savings of time in laying out the markings; 4. acts as a safety device in that smaller areas are closed to traffic, and further, that workers do not have to cross traffic as often as formerly to check measurements; and 5. the cost of the device is negligible.

A study made by a traffic engineer indicated a definite trend for the nationwide use of white center lines and yellow barrier lines. Only seven of the 48 states use yellow for center lines. The most common use of color for center lines is white on black top and brick surfaces and black on concrete surfaces. Out of 48 states, 20 use this combination. Seventeen states use white for center lines regardless of the type of road surface. Twenty-nine states use yellow barrier lines while 13 states use white. Of these, five use a broken white line which changes to a solid white line to indicate a barrier or no-passing zone. Several states since the war have changed from yellow to white center lines. A few of these states may go back to yellow when it is again available. A yellow barrier line has more attention value than other colors, and the effectiveness of yellow is greatly increased when used alongside a white or black center line.

PERIODICAL PUBLICATIONS

Bus Transportation
330 West 42nd Street, New York City.
Economic Geology
Natural History Bldg., Urbana, Ill.
Electrical Communication
67 Broad Street, New York City.
Electrical World
330 West 42nd Street, New York City.
Gas Age-Record
9 East 38th Street, New York City.
Journal of the American Water Works Association
500 Fifth Ave., New York City.
Journal of Geology
5750 Ellis Ave., Chicago.
National Engineer
176 W. Adams Street, Chicago.
Public Service Magazine
1012 Pioneer Bldg., St. Paul, Minn.
Public Utilities Fortnightly
1038 Munsey Bldg., Washington, D. C.
Public Works
310 East 45th Street, New York City.
Sewage Works Journal
40 Wall Street, New York City.
Water Works and Sewerage
155 East 44th Street, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Planning and Civic Association, 901 Union Trust Bldg., Washington, D. C.

American Public Utilities Bureau, 280 Broadway, New York City.

American Transit Association, 292 Madison Ave., New York City.

American Water Works Assn., 500 Fifth Ave., New York City.

Edison Electric Institute, 420 Lexington Ave., New York City.

International Assn. of Fire Fighters, A. F. L. Building, Washington, D. C.

National Parks Assn., 1214 Sixteenth St., N.W., Washington, D. C.

Park Assn. of New York City, Inc., 295 Madison Ave., New York City.

Public Service Commission (N. Y. State) Albany, N. Y. and 233 Broadway, New York City.

DIVISION IX

DEFENSE AND ARMAMENT

THE UNITED STATES ARMY

By Robert S. Thomas
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THE END OF COMBAT WAR

In 1945, the world passed from a state of combat war to a condition of peace. Armed resistance of our enemies collapsed. On the Italian Front, enemy forces surrendered unconditionally at 8 a.m. Eastern War Time, Wednesday, May 2, 1945. The formal surrender document was signed Sunday, May 6, at Caserta, negotiations being handled for the Allies by British Lieut. Gen. W. D. Morgan, representing Field Marshal Sir Harold R. L. G. Alexander, supreme Allied commander in the Mediterranean area. In the European theater, General Dwight Eisenhower announced the surrender of Holland, northwestern Germany, and Denmark, including Helgoland and the Frisian Islands, on Friday, May 4, 1945. All Western Front resistance had ended by Saturday, May 5, except for the Nazi Seventh Army which faced General Patton's American Third Army in Czechoslovakia. On Sunday, May 6, Admiral Doenitz ordered all German submarines to cease hostilities. Monday, May 7, Germany formally surrendered as Col. Gen. Gustave Jodl, representing what remained of the German Reich, signed a surrender agreement with Lieut. Gen. Walter Bedell Smith, representing the United States as General Eisenhower's Chief of Staff. The meeting occurred in a red schoolhouse in Reims, France. President Truman and Prime Minister Churchill announced Tuesday, May 8, 1945, as V-E Day and decreed that all fighting should cease at 6:01 a.m., Eastern War Time, on that date.

In the Pacific theater, a Tokyo radio broadcast on Friday, Aug. 10, stated an offer to surrender. However, since neither the United States, Great Britain, nor Russia were in receipt of a peace note, orders were given for the Allies to continue fighting. On Sunday, Aug. 12, a radio flash over the facilities of the National Broadcasting Company announced that the Japanese had surrendered. Within two minutes, this report was branded as premature and unfounded. Tuesday, Aug. 14 at 7 p.m., Eastern War Time, President Truman announced to the world that Japan had surrendered. On Sept. 2, 1945, Japanese representatives, in the presence of General Douglas MacArthur, signed surrender terms on board the USS *Missouri*, in Tokyo Bay.

ARMY ORGANIZATION

At the close of the year, administrative command organization was headed by Robert P. Patterson, Secretary of War (succeeding Henry L. Stimson), with Kenneth C. Royall, Under Secretary of War; Howard C. Petersen, Assistant Secretary of War (succeeding John J. McCloy); and Robert A. Lovett, Assistant Secretary of War for Air. The military phase of command included General Dwight D. Eisenhower, Chief of Staff (succeeding General George C. Marshall); General Jacob L. Devers, in command of Army Ground Forces; General Henry H. Arnold, in command of Army Air Forces; and General Brehon B. Somervell, in command of Army Service Forces.

At the cessation of hostilities in the principal theaters of operations, Army commanders were: General Courtney Hodges, First; Lieut. Gen. Lloyd R. Fredendall, Second; General George S. Patton, Jr., Third; Major General John P. Lucas, Fourth; Lieut. Gen. Lucian K. Truscott, Jr., Fifth; General Walter Krueger, Sixth; Lieut. Gen. Alexander M. Patch, Seventh; Lieut. Gen. Robert L. Eichelberger, Eighth; Lieut. Gen. William H. Simpson, Ninth; Lieut. Gen. Simon B. Buckner, Tenth; Lieut. Gen. Leonard T. Gerow, Fifteenth; Lieut. Gen. Lewis H. Brereton, First Allied Airborne (largely U. S. troops). Army Group commanders were: General Jacob L. Devers, Sixth; General Omar Bradley, Twelfth; General Mark W. Clark, Fifteenth. General Carl Spaatz, United States Strategic Air Forces in Europe; General George C. Kenney, Far East Air Force. Theater command was: European — General Dwight D. Eisenhower; Pacific—General Douglas MacArthur; Mediterranean—General Joseph T. McNarney (Deputy Supreme Allied Commander); Burma-India—Lieut. Gen. Daniel I. Sultan; China—Lieut. Gen. Albert C. Wedemeyer.

Service commands in the United States were headed as follows: First, with headquarters in Boston, Mass., Major Gen. Sherman Miles; Second, headquarters in Governors Island, New York, Major Gen. Thomas B. Larkin; Third, headquarters in Baltimore, Md., Major Gen. Philip Hayes; Fourth, headquarters in Atlanta, Ga., Major Gen. Edward H. Brooks; Fifth, headquarters in Columbus, Ohio, Major Gen. James L. Collins; Sixth, headquarters in Chicago, Ill., Major Gen. David I. McCoach, Jr.; Seventh, headquarters in Omaha, Neb., Major Gen. Louis A. Craig; Eighth, headquarters in Dallas, Tex., Lieut. Gen. Walton H. Walker; Ninth, headquarters in Fort Douglas, Utah, Major Gen. Wm. E. Shedd.

The Chief of Staff, General Eisenhower, had as assistants: General Thomas T. Handy, Deputy Chief of Staff; G-1, Major Gen. Willard S. Paul; G-2, Major Gen. Clayton Bissell; G-3, Major Gen. I. H. Edwards; G-4, Major Gen. Russell L. Maxwell; Operations Division, Lieut. Gen. John E. Hull.

The Chiefs of the several arms and departments were: Major Gen. Edward T. Witsell, Adjutant General's Department; Lieut. Gen. Daniel I. Sultan, Inspector General; Lieut. Gen. Edmund B. Gregory, Quartermaster General; Major Gen. Norman T. Kirk, Surgeon General; Major Gen. A. H. Carter, Fiscal Director; Major Gen. W. H. Kasten, Chief of Finance; Lieut. Gen. Raymond A. Wheeler, Corp of Engineers; Lieut. Gen. Levin H. Campbell, Ordnance Department; Major Gen. Harry C. Ingles, Signal Corps; Major Gen. Alden H. Waitt, succeeding Major Gen. William N. Porter, Chemical Warfare Service.

AIR SERVICE

Republic Aviation Corporation, in cooperation with Air Technical Service Command, developed a new single-seater plane, P-47 N, nicknamed "Thunderbolt," which has a flying speed exceeding 450 m.p.h., with a radius of over 1,000 miles of flying. The pilot functions as navigator, bombardier, gunner, and radio operator.

Flying at 20,000 feet altitude, a Tinian-based B-29 completed a nonstop flight from Honolulu to Washington in 17 hours and 21 minutes with an average speed of 285 m.p.h.

A Twentieth Air Force B-29 plane carried documentary photographs of initial landings in Japan from Iwo Jima to Spokane, 5,490 miles, in 23 hours, 33 minutes. The plane then continued on to Washington, D. C., flying the remaining 2,086 miles in seven hours. On the morning of Sept. 2, an ATC C-54 plane took off from Atsugi Field near Tokyo and flew to Washington, D. C., 7,400 miles, in 31 hours 20 minutes. This plane carried passengers and pictures of the Japanese surrender ceremony on board the battleship *Missouri.*

In November, a B-29, stripped of all excess weight, set a new world's record of 8,198 miles nonstop flight from Guam to Washington, D. C., covering the distance in 35 hours, 5 minutes. At the end of the flight, enough gasoline remained in the tanks for an additional hour and a half in the air.

Reginald Denny announced perfection of a pilotless plane, capable of reaching a speed of 200 m.p.h. This radio-controlled plane will be used for the present in crop dusting, weather observation, and mail delivery.

Successful tests, begun in August, demonstrated the practicability of converting the B-29 Superfortress to transport purposes. In the initial test, a B-29, so converted, carried 57 fully equipped men plus ammunition, food for seven days, and 6,400 gallons of gasoline, a payload of 17,000 pounds.

The Army Air Force announced the first jet-propelled combat plane, the P-80, built by Lockheed. Known as the "Shooting Star," it is believed to be the fastest fighter plane in existence.

A radically new bomber was developed by Air Technical Service Command and Douglas Aircraft Company. It is the XB-42, known as the "Mixmaster." This plane is driven by two counter-rotating Curtiss propellers located at the extreme rear of the fuselage, behind the tail surfaces. Two Allison V-type, liquid-cooled engines mounted in the fuselage drive the propellers, thus eliminating the necessity of engine nacelles and propellers being installed in the wings. It is the first bomber in the 400 m.p.h. class. Because of its unusual design, the plane features distinctive bailing-out procedure. The whole propeller installation, at the flick of a detonating switch, can be blown off, thus eliminating the possibility of crew members tangling with the propellers.

The activities of the Air Transport Command aroused worldwide interest. This Command was organized originally, May 29, 1941, as the Ferrying Command. Some few achievements in 1945 are named here. In January, the A.T.C., flying over the most hazardous airway in the world, moved more than 44,000 tons of supplies over the Hump, thus keeping open the aerial lifeline from India to China. To provide close liaison between Allied commanders in southeast Asia and those in Southwest and Central Pacific areas, regular round-trip air service was set up from India to Australia. Operating a trans-Atlantic aerial express line, the A.T.C. took American diplomatic and military delegates to and from the Big Three Conference at Potsdam, Germany. Early in September, plans were announced for curtailing operations of the A.T.C. By July 1, 1946, it was planned to bring the Command's 3,000 transport planes down to 650 and to reduce its military personnel from 210,000 to 80,000 or less. On Sept. 28, at 4:30 p.m., the A.T.C. inaugurated the first round-the-world scheduled aerial service; continuing plan is to schedule departures once a week. The first ship to fly this service was named the "Globester." In all operations, including transport, ferrying, training, rescue, and special missions, A.T.C. planes flew a total of 11,744,000 hours and a total of 1,549,938,000 plane miles. Approximately 3,252,000 passengers were carried, 305,600 of whom were sick and wounded patients.

The combat value of the Air arm was perhaps best summarized by Major Alexander de Seversky, after his observation trip to European and Mediterranean theaters of operations. He stated: "Allied victory in Europe came through Air Power. Control, or at least superiority, in the skies over the entire theater was indispensable to any successful operation on land or sea. Such superiority was achieved by the Allied Air Forces . . . by the time of the invasion of the Continent, the German Luftwaffe was reduced to impotence . . . the decision had been won in the skies; the invasion exploited the decisive victory." There was a repetition of this pattern in the Asiatic theater where the XX and XXI Bomber Commands drove Japanese planes from the skies and battered Japanese industrial and military targets with no letup. Railroad yards, airplane factories, oil depots, military camps, all were hammered on Honshu, Shikoku, and Kyushu Islands, as well as in mainland cities of Saigon, Indo-China, Burma, and Siam. On July 9, the 2,000,000th ton of American bombs, dropped since Dec. 7, 1941, fell on Japan during an air raid over Gifu, Sendai, Sakai, Wakayama, and Yokkaichi. A month later, our B-29 Superfortresses executed the most devastating air mission in history when, releasing a single atomic bomb in each instance, Hiroshima, and a few days later, Nagasaki, were blasted. Japanese resistance became a thing of impotence, and General MacArthur's forces later invaded Japanese soil without firing a shot or suffering a casualty.

EQUIPMENT

To deal comprehensively with the story of equipment during the year is out of the question in an article as space-limited as this. However, some of the notable items are focused briefly.

In order to service planes from the smallest wing nut to large wing and tail assemblies, huge barges were built by the Judson Pacific Shipbuilding Company of Oakland, Calif. and the Ingalls Shipbuilding Company of Decatur, Ill. These barges were stocked with 5,000 separate items to facilitate, by speedy repair and replacement, the progress of our forces heading for Tokyo.

Equipping and maintaining a soldier in continental United States cost the Quartermaster Corps' purchasing agents more in 1945 than in 1944. The figures were:

	1944	1945
Food	$215.35	$226.30
Clothing	173.70	212.00
Individual Equipment	44.70	63.93
Barracks Equipment	31.31	31.65
Totals	$465.06	$533.88

In 43 months' time from Dec. 7, 1941, the Quartermaster Corps spent:

Clothing	$ 5,182,402,000
Equipage	2,724,670,000
General Supplies	1,655,605,000
Materials' handling equip.	341,202,000
Subsistence	10,660,707,000
Total	$20,564,586,000

The following comparative figures on the First and Second World Wars soldier equipment are of interest:

	First World War	Second World War
Shoes	8-E and 8-D most popular	9-E and 8½ D
Socks	Size 10 worn by 31.4% of men	Size 11 by 31.8%
Trousers	Waist 32″—leg 32″	Waist 32″—Leg 33″
Shirts	15 to 15½ by 50% of men	14½ to 15 predominant
Hat	Size 7	Size 7⅛ to 7¼

The British needed locomotives desperately during the year. In 92 days the Baldwin Locomotive Works produced 18 locomotives, and, in the first air flight of its kind, these rail monsters were flown directly to Burma.

The Chemical Warfare Service developed three gas mask sizes, suitable to fitting all soldiers. In addition, this Service designed a special mask to protect men forming bazooka teams from particles blown back after rocket has left the bazooka muzzle.

Communication problems gave birth to two new radio sets used successfully in both theaters of war—the AN/VRC-1 and the AN/TRC-7. The first-named, designed for operation from a jeep, is a combination of high-frequency and very-high-frequency radio with a variable distance range of 20 miles for voice, 40 miles for tone, and 60 miles for continuous wave when high-frequency transmitter is used. The AN/TRC-7 is a portable set, carried by dismounted troops to maintain contact with aircraft. The set weighs 100 pounds and can be dropped by parachute to ground troops. It is a very-high-frequency transmitter and receiver and can be operated from a hand-operated generator or from dry cells.

A new record for round-the-world radio transmission was established by U. S. Army Signal Corps on April 28, 1945 when a nine-word radio-teletypewriter message completely encircled the earth in 9½ seconds.

A high-powered radio station was designed and built into 24 C-47 transport planes in a space of 42 hours to guide air fleets carrying occupation forces to Japan. These flying radio stations landed behind the American "jeep control towers" which were the first of our units to land on Japanese soil. Within 45 minutes after the C-47's landed on Atsugi airstrip outside of Tokyo, communications were established with Okinawa and Manila.

The Signal Corps revealed the functions and achievements of a radar set which detects enemy planes far beyond the range of human vision, following the enemy's course so accurately that it can automatically aim an aircraft gun so that the shells will explode within a few yards of the target. This radar set made the sound locator obsolete. It searches the sky in all directions and elevations and, by means of electronic lobe switching, catches and holds the suspected plane between a horizontal and a vertical beam, thus doing away with the necessity of observing anything except the recording echoes on the radar board. To destroy the efficacy of the enemy's radar work, the Radar Countermeasures Program of the Signal Corps cluttered German operation by releasing packages of foil from planes. This foil, known as "chaff," was released to the extent of 10,000,000 pounds during Allied bombardment of the Reich. Production of chaff in such quantities was made possible by our people willingly giving up the familiar wrappings formerly found around chewing gum, cigarettes, and candy bars. High-powered radio transmitters known as "Jammers," were very effective in blacking out German radar sets. In all countermeasures in this field, our scientists kept far ahead of Japanese efforts.

In January, 1945, communications troops in the European theater were stringing wire at the rate of 2,200 miles daily, to service a network extending to 140 principal headquarters. This work was speeded up by new procedures, born of war conditions. Wire in coil form was laid by airplanes, by bazookas, and by rifle grenades without the use of reels. In one case amphibious "Ducks" were used successfully; in another a liaison plane strung a line while flying at 110 miles an hour.

As a substitute for cotton duck formerly used in tarpaulins, the Quartermaster Corps developed a new material made out of laminated paper-burlap.

A solar still was developed by the Air Corps. Using the sun's heat against the still's transparent plastic bag, a pint of fresh water can be produced from salt water in a day.

A new wrapping to protect K rations shipped to the South Pacific was fabricated in the form of a triplex asphalt-impregnated bag, fitted between the outer case and the ration.

ATOMIC AND OTHER BOMBS

Progress in the munitions field was dominated by the development and use of the atomic bomb. In the desertlands of New Mexico a $2,000,000,000 experiment was brought to fruition when the first man-made atomic explosion was touched off at 5:30 a.m., July 16, 1945. Successful performance of this revolutionary weapon exceeded every estimate. The Atomic Bomb Project, headed by Major General Leslie R. Groves, was under the scientific direction of Dr. J. R. Oppenheimer, theoretical physicist of the University of California. When the test bomb, mounted on a high steel tower was fired, a blinding flash, as of lightning, lit up the whole area brighter than daylight. A mountain range three miles away stood out in sharp relief. The flash was followed by a tremendous roar and a heavy pressure wave, then a huge, multicolored cloud surged upwards to a height of over 40,000 feet—ordinary clouds disappeared in the path of this man-made phenomenon. The steel tower was entirely vaporized, and the earth was gouged in the form of a huge, sloping crater. The work of thousands of people over several years time had brought forth the most destructive agent ever conceived by man. This agent, dropped from the air over Hiroshima (Aug. 6, 1945) and Nagasaki (Aug. 9, 1945) broke Japanese resistance and practically dictated the terms of surrender. Hiroshima disappeared as a city with a terrific toll of life* and property; Nagasaki, not quite as badly damaged, still served to emphasize what was in prospect for the Japanese nation should it elect to continue fighting.

In connection with bomb development in the Army and Navy, a proximity fuse was built through the efforts of British and American scientists. The fuse assembly ranked with radar and the atomic bomb as one of the most decisive weapons of the war. The fuse consists of a small, wonderfully rugged radio transmitter and receiver, about the size of a man's fist. Placed in a bomb or projectile, it sends out high-frequency radio waves which cause the detonation of an explosive charge when they bounce back from enemy aircraft, vehicles, or the earth itself. Originally, electric power was provided for the minute radio by development of a tiny dry-cell battery, no larger than the cap of a fountain pen. The limitations of this kind of power were fully realized, and it was subsequently replaced by a generator, motivated by a small windmill propeller, recessed in the nose of the projectile. This tiny, wind-driven generator, evolved in perfection of the VT proximity fuse, was no larger than a watch and was so designed as to fit into the nose of an aerial bomb or rocket projectile. Whirling at 100,000 revolutions per minute, this windmill supplies power enough to create continuous emanation of radio waves from the bomb or projectile. To prevent the proximity fuse from detonating the explosive upon receipt of wave echoes from the aircraft which launched it or from other nearby friendly planes, connection between fuse and detonator is left open until after the projectile has been launched, after which it closes automatically.

A new skymarker bomb (M-87) invented by the Technical Command of the Chemical Warfare Service, makes a colored smoke trail through the sky. It was designed for use with precision instruments in bombing enemy targets through clouds, smoke screens, and other conditions preventing visual sighting.

A new incendiary bomb (M-74) was perfected. It is a 10-pound tubular contrivance which regurgitates its complex entrails almost immediately after landing on an enemy target. The stuff emitted (known as "goop,") looks like lava. It is a compound of magnesium powder, coated with asphalt.

The Army added an aerosol bomb to its equipment. Loaded with DDT (dichloro-diphenyl-trichlorethane), it wages war on mosquitoes and other disease-bearing insects.

OTHER EQUIPMENT

Motorized rocket units were in training during the year at Fort Sill, Oklahoma. Their use is in putting down a heavy barrage in a concentrated area ("mattress fire"). Each rocket weighs 38.4 pounds and has an explosive charge of 4.3 pounds of TNT.

Multiple-tube rocket launchers, fired electrically, were designed in several combinations. An 8-tube, 4.5″ rocket launcher, nicknamed "Xylophone," fires a rocket 30″ long, weighing 38 pounds, and having the power of a 105-mm. shell. This was used as a ground weapon or was fired from trucks and jeeps. A 60-tube launcher, "Callipoe," was built to be mounted on a tank turret so as to be rotated for 'round the circle firing. A 20-tube launcher, firing a 7.2″ rocket was called "Whiz Bang," and throws a rocket equivalent in firepower to the 155-mm. "Long Tom" gun.

In house-to-house fighting along the Rhine, the M-2 carbine, modified so as to make it an automatic firing weapon, proved especially effective.

Specifications were released to the public on the giant 914MM (36¼") mobile mortar, largest and most destructive weapon of its kind. It is capable of hurling a 3,650 pound projectile a distance of six miles. Known as "Little David," this weapon has a rifled, 22-foot, muzzle-loading tube which, with its firing mechanism and other parts of assembly make up a total weight of 80,000 pounds. Base assembly, a huge metal box, weighs 93,000 pounds. Tube and base assembly travel separately and the complete unit also includes a bulldozer and crane with bucket-shovel to dig the necessary emplacement. Even though it is larger than the 820MM German weapon, it can be emplaced in 12 hours, whereas the German gun, traveling on 24 railway cars, required three weeks to put into firing position.

The Ammunition Division, Army Ordnance Department, devised a new shell-loading machine. Part of it looks like a milking machine for a 24-teat cow; the other part looks like an assembly of 24 round bayonets slung under a steel bar. The "mechanized cow" cools the correct amount of TNT to exact temperatures, then pours it through the nozzles into 24 shells, mounted on a carriage. The shells are then moved to where they can be probed by the steam-heated "bayonets" in order to prevent formation of air cavities, a frequent cause of premature explosions.

FOOD

Early in the year, tests were made to ship eggs as non-refrigerated cargo. A fast-flying schedule to both European and Pacific theaters of operations established the feasibility of this procedure.

Army purchases of food in 1944, in dollar volume, were 80 per cent greater than those for 1943; those for 1945 jumped 20 per cent over the 1944 schedule.

The Transportation Corps' "Penguin Fleet" delivered fresh meat and dairy products to American troops in Germany, from Antwerp. Within eight hours after supplies were transferred from ship to truck they were available to the mess cooks. In work of this kind, the Quartermaster Corps had the volunteer services of 15 consultants from commercial refrigerated warehouses, to improve and improvise methods of handling perishable goods.

In the first five months of 1945, beef accounted for 1/3 of perishable tonnage shipped overseas.

The end of hostilities witnessed the turnback to civilian channels of much Army food. In October, 80,000,000 pounds of butter were made available to civilians, and in the same month approximately 124,210,000 special combat rations and 552,134,000 pounds of ration components were marked to be sold to United Nations Relief and Rehabilitation Administration for $100,000,000.

A new type refrigerator barge, BRL, operated by Army Transportation Corps and costing $1,120,000 to build, was designed to bring plenty of ice cream, fresh meat, fruits, and vegetables to soldiers stationed on Pacific islands. On this barge, 10 gallons of ice cream can be made every seven minutes, and five tons of ice every day. The equivalent of 64 carloads of frozen meat can be stored at 12° above zero, along with deck storage space for 500 tons of fresh vegetables, cheese, eggs, and other perishables. Eighty-four motors produce 440 volts of power to operate the cooling and freezing machinery.

Air crew lunches were modified so as to increase the carbohydrates. Fudge, assorted candy, and gum were added to relieve the impression of hunger experienced by air crews returning from their missions. A container was devised for the lunch which admitted of opening with one hand, even if gloved.

In March, calories in C rations were increased from 2,775 to 3,700 per man.

The American 27th Infantry Regiment, 25th Division, paid special honor to "Wolf," U. S. Army Dog T-121 who died from wounds received in action. His work in alerting the enemy at 150 yards on one occasion permitted a successful surprise attack by our troops and, although badly wounded, he continued to work until our success was assured. In a unique ceremony, the first Army Ground Force troops to be trained to handle war dogs in combat were graduated at Fort Robinson, Nebraska, in August.

The following breeds of dogs were listed as acceptable for training in Pacific areas: German shepherd; Belgian sheep; Doberman pinscher; collie (farm type with medium length coat); schnauzer (giant). Positive crosses of these breeds were also accepted.

DECORATIONS

The printed record of decorations bestowed upon officers and enlisted men for heroism in service is a matter for future government publication and will include thousands of names. A few decoration highlights, aside from such items as would appear in the general list of those cited for heroism in battle, are here presented.

WAC Colonel Oveta Culp Hobby, was the first militarized woman to receive the Distinguished Service Medal in the Second World War. The same award went to Jacqueline Cochran, formerly director of women pilots, Army Air Forces, the first civilian woman to receive the Medal. Mrs. Anna Rosenberg of New York City was the first recipient of a new civilian decoration, "Medal of Freedom."

There was created a new Medical Badge to recognize service rendered by Medical Corps men while on duty with combat infantry units.

On Sept. 7, 1945, the Army-Navy "E," awarded for industrial achievement in furthering the war effort was terminated.

MAIL

Because of tense military conditions in March, the War Department temporarily curtailed shipment of mail overseas in order to provide all possible cargo space for air transport of munitions. In August, facilities were provided to fly mail to Manila for prisoners of war and civilian internees held by Japan. From June, 1942, to August, 1945, Signal Corps V-Mail Section in the United Kingdom handled a total of 517,000,000 pieces of V-mail. Of this total, 259,000,000 were letters to our personnel stationed in the United Kingdom, while 258,000,000 were addressed to soldiers, friends, and relatives in the United States. Microfilming of V-mail was discontinued on Nov. 1, 1945. This service had been initiated in June, 1942, between the United States and the United Kingdom and was subsequently expanded to all theaters of operation.

To October, 1945, approximately 750,000,000 V-mail letters had been sent from America and about 700,000,000 had been received in America.

METEOROLOGY

The Army Air Forces Weather Division solved deficiency current weather observations over territories held by the enemy by developing a new technique of investigation known as "synoptic climatology," based on the frequency with which certain patterns of weather or distribution of weather elements occur. Army Air Forces Weather Service, Headquarters in Asheville, N. C., has been converted to a peacetime basis. This Service represented an initial installation outlay of close to $40,000,000 and employed a corps of highly trained officers and enlisted men. The Service grew from 43 stations with less than 300 personnel in 1937 to a globe-girdling network of 857 forecasting and observation units with 17,800 officers and men.

MILITARY GOVERNMENT

In May, it was announced that Germany was to be governed through a Control Council on which each of the four major Powers would be represented. Each power was to administer an allotted zone of Germany with a military commander as governor. Lieut. Gen. Lucius Clay was selected to represent General Eisenhower on this Council.

On Sept. 20, General Eisenhower submitted his second report on the operation of military government in the American Zone in Germany. A few of the items he stressed follow:

Control.—Control Council of the four Commanders in Chief was first established, followed by a Coordinating Committee of the Deputies, and the Directorates of the Control Staff.

German Governmental Organizations.—Continued progress was made in locating and earmarking suitable German administrative personnel for key positions in central departments and agencies to be established.

Civil Service.—Reestablishment of the former highly efficient German Civil Service System was sought. Nazis were removed from office and steps were taken to attract exceptionally qualified German personnel for general and technical training for the jobs to be filled.

Denazification. — During August, 18,300 active Nazis were arrested, bringing the total of this class arrested in the United States Zone to 66,500. As the Nazis were cleaned out of public service positions, more attention was paid to their elimination from private business and professional circles, where they were attempting to dig in and control community life. American officials took over control of the I. G. Farbenindustrie, and Nazi banks in the U. S. Zone were stripped of their former officials. If there was the slightest chance of a German industrial set-up being used for production that might eventually be turned against us, it was razed.

Political Activity.—Negatively this phase of control in the American Zone emphasized the removal from office and arrest of known Nazi office holders. A program for encouraging the growth of real democracy was instituted. The German people were told that they were to have the opportunity to prepare for the eventual reconstruction of their lives on a democratic and peaceful basis, particularly at the county level of governmental control.

Information Control. — Definite progress was made in this field towards the goal of purged, reoriented, and German-directed information media. American radio station programs were softened by the addition of more music and the lessening of insistence on retribution and placing of atrocity guilt; the first licensed German semi-weekly newspaper in Germany was published in August. It was the *Frankfurter Rundschau,* with a circulation of 415,000; after careful screening to eliminate Nazis, six applicants were licensed and registered as publishers; motion picture theaters were being slowly reopened, principally with American films.

German Reactions.—Some criticism was voiced to occupation procedure. Either there was too much or too little denazification. However, the average German had but little time to formulate active and organized opposition to the occupation. His immediate and pressing job was to get food, fuel, and shelter for the winter.

General Economic Conditions.—Most immediately, American officials had to work with the Germans toward providing food, mining coal, and putting transportation agencies into operation. To further this, unnecessary restrictions were removed so as to stimulate German economy to the end that a minimum of outside assistance would eventually be required. To balance the economic situation was a difficult task—shortage of goods and heavy excess of buying power in the hands of the people set up a definite inflationary trend.

Production Problems. — Shortage of skilled underground workers hampered production of coal. However, in September there was a definite upward trend in mine operations. Progress toward traffic restoration on the Rhine was forecast in mid-September by the arrival at Mannheim of 470 tons of coal shipped by barge from Cologne. By August, 82 per cent of main-line railroad trackage had been put back into operation. Industrial activity was hampered through lack of raw materials so that no more than 5 per cent capacity of industrial plants was in operation in the American Zone. However, in the production of building materials and timber products there was a marked upward surge.

NATIONALS

In April, a Brazilian Expeditionary Force numbering 25,000 operated with the American Fifth Army against the disorganized Germans in the Po River Valley. On the Stilwell Road, Chinese youths, many of whom had never seen a plane or power vehicle, were trained as truck drivers. On March 25, Italian Service Units in the United States completed their first year of organization, having contributed 1,000,000 man-days per month of essential skilled and unskilled labor at military installations. In a pre-war neglected industry, lignite coal mining, Italian miners produced 50,000 tons per month. Flying personnel of the Mexican Expeditionary Air Force were trained in Air Force installations in the United States. Their first unit to enter combat was the 201st Mexican Fighter Squadron which, on June 3, bombed and strafed Japanese tanks and positions in the Cagayan Valley of Luzon in the Philippines. Eleven members of the Canadian Army assigned to the First Special Service Force, Canadian and American troops, were decorated for bravery during operations in France and Italy. This American-Canadian First Special Service Force, together with the noted 99th "Norwegian" Separate Infantry Battalion made up "Task Force A," otherwise known as the 474th Infantry Regiment, a unit which was mountain-trained in Helena, Mont. This unit particularly distinguished itself in Italy at La Difensa, Mt. Sammuere, Mt. Majo, Rome, and in the capture of the islands of Port Cros and Levant.

MEDICAL

Army Medical personnel developed artificial eyes made of water-clear plastic and capable of being tinted to duplicate every appearance of the natural eye. In the Pacific, skin diphtheria was quickly brought under control to prevent epidemic conditions. In January, five more troop ships were stripped of armament and converted into U. S. Army hospital ships, raising the total to 29 and affording transportation to 18,000 sick and wounded. Penicillin lozenges, compounded of penicillin and gelatin, were used to clear up trench mouth in a day; tonsilitis in two days. In March, the War Department announced perfection of an improved artificial leg made of light metals, plastic, or fiber, with provision for interchangeability of parts.

Under a new system of refrigeration, whole blood was held at temperatures ranging from 39° to 50°, making possible its use after 21 days rather than 16, the previous period of possible holding. DDT was tested for large-scale use in battling malaria; especially effective against mosquitoes. Up to May 1, 1945, Army Hospitals in the United States treated 11,000 amputees. From the fall of 1942 to May, 1945, more than 1,000,000 sick and wounded soldiers of American and Allied forces were evacuated by the Army Air Forces. A new method of quick-freezing whole milk made it possible to serve wounded soldiers returning from overseas on Army hospital ships with milk. In some instances, milk was held in a frozen state for three months before it was used. Eight centers were established in the United States for treating soldiers suffering from tropical skin diseases. The Army made use of the new wonder drug, streptomycin, in the treatment of urinary tract infections. In September, the total output of this drug was only 14 ounces, although four companies were engaged in its manufacture.

Since Pearl Harbor, the Army Dental Corps made 71,700,000 fillings; did 16,500,000 extractions; and fashioned 2,600,000 dentures for Army personnel. Army dentists were also active in perfecting techniques associated with formation of plastic ears, noses, and chins.

The Signal Corps, working with the Medical Corps, adapted electronic principles akin to those used for radar to develop "sensory aid," whereby the blind can probe their surroundings by means of a beam of light and "feel" obstacles within a radius of 20 feet. The device, about the size of a loaf of bread, is referred to as an "optical cane."

Another achievement for the Signal Corps, at the request of the Surgeon General, was the development of a new camera using an ultra high-speed, high intensity, self-contained light source. The camera operates easily, taking pictures in black and white or in color, indoors or out, at distances from six inches to 12 feet. Except for focusing and clicking the shutter, its action is entirely automatic. Light source for the new camera is a coiled, circular quartz vapor discharge tube, designed by GE, and giving a flash of approximately 1/25,000 second duration. This camera, valuable to surgeons for recording steps in the course of difficult operations, is fast enough to "freeze" the whirring of a moving fan blade.

Nine Korean physicians, at the expense of the International Health Institute, Rockefeller Foundation, began training in American schools in order to lay the foundation for an efficient, self-sufficient medical service for the Korean nation. No Korean citizen had had opportunity to develop in this field for the past 30 years under Japanese domination.

In July, the War Department announced that all transportable sick and wounded would be brought home from Europe within 90 days after VE-Day. Actually most of the job was done within 60 days.

Every effort was made early in the year to recruit the Army Nurse Corps to full strength. Evelyn Blewett of the War Advertising Council was appointed as civilian consultant to the Surgeon General to assist the Army's publicity drive for the enlistment of nurses. Because of slowness in recruiting, any registered nurse who conformed to Army standards was eligible for consideration as a commissioned member of the Army Nurse Corps. By February, 1945, it was possible to show a net gain of 800 by reason of having commissioned 1,050 nurses in January. Continued pressure was maintained until cessation of hostilities. On Feb. 2, the Army Nurse Corps was 44 years old. Major Gen. Paul Hawley, Chief Surgeon in the European theater of operations, said of the nurses: "Magnificent is the one word that describes the job they are doing. . . . A part of every soldier's heart is reserved for them. . . . The Army Nurse is a good soldier." In the Seagrave Unit in Burma, 19 nurses were decorated with the Bronze Star Medal.

PRISONERS OF WAR

The horrors of enemy camps where American officers and enlisted men were held in confinement as prisoners of war have been exploited in the press and have fully emphasized, by contrast, the humanitarian side of American principles and standards. It is almost needless to point out that, as regards Japanese and German prisoners of war held by us, there were no Dachaus, no Buchenwalds, no punishment crematories, racial or otherwise, and no death marches of Bataan. Early in 1945, Feb. 10, the following enemy prisoners were held in continental United States: German 305,742, Italian 50,578, Japanese 2,820, Total 359,140.

The small number of Japanese recorded in the above total is mute evidence of their fanatical desire to die for their Emperor rather than be taken prisoner. In March, plans were made to bring an additional 100,000 German prisoners to the United States to, (1) ease the burden laid on American forces in Europe for their care and, (2) to help meet the acute labor shortage in this country. In the first three months of 1945, prisoners of war in the United States did more than $44,000,000 worth of work.

From D-Day in Europe, through April 25, 1945, the Allied armies captured 2,628,529 prisoners. In November, the War Department announced that prisoners of war would be withdrawn from all labor in the United States by the end of April, 1946 and that they would be shipped out of this country. Prisoners of war rate of work mounted to 10,000,000 man-days of work per month. The schedule for returning these prisoners to their native lands was given as follows:

	Italian	German
December, 1945	9,000	60,000
January, 1946	11,500	70,000
February	4,800	70,000
March		83,000
April		43,000

For those of our men held prisoner in enemy hands, every effort was made, principally through the International Red Cross, to provide necessary food, medicine, clothing, and blankets. During February, March, and April, a group of repatriated prisoners of war from Germany and escapees from Japanese prisons toured American cities to tell the civilian population of conditions in enemy prison camps.

The Surgeon General of the United States Army reported that reconquest of the Philippines came at a time when American civilian prisoners of war at Santo Tomas, Los Banos, and Bilibid internment camps were slipping over into conditions of extreme starvation.

RAILROADS

In July, the United States relinquished operation of the Iranian State Railway. In 30 months of operation, it carried 3,000,000 long tons of lend-lease war material to Soviet Russia. The 685-mile line had to be completely rehabilitated when Americans took over its operation, since most of the equipment at that time was ready for the scrap heap.

From November 1942 to June 30, 1945, American railroads had a record of over 1,000,000 trips, involving multimillion miles, in the transportation of over 510,000 sick or wounded soldiers. To help the Army's redeployment plan in the summer, Army planes aided the rail effort. In June, several thousand soldiers with previous railroad experience were furloughed to help solve the heavy transportation problem. To provide maximum sleeping facilities for the long ride from Camp Kilmer, N. J., to the West Coast, "rotation sleeping" was initiated.

On Aug. 3, the largest single rail movement of troops in the United States was initiated—31 trains, including 331 Pullmans, 100 coaches, and 41 kitchen cars hauled 22,000 returnees from Camp Kilmer to 22 scattered reception stations, where the men were to be processed for separation from military service.

RECRUITING

On Oct. 12, the first class of "Recruiters," 153 officers and 153 enlisted men, was graduated from The Adjutant General's School at Ft. Oglethorpe, Georgia. By Oct. 19, voluntary enlistments in the new peacetime Regular Army reached 44,799. Of these, 48.92 per cent were from former Regular Army soldiers; 43.15 per cent, men who were presently serving or who had served under Selective Service call; 7.93 per cent were original enlistments of men with no previous service. Under the Armed Forces Voluntary Recruitment Act of 1945, enlistments were provided at three years, two years, and 18 months. Liberal retirement and furlough privileges were held out to prospective soldiers. The whole program was put in the hands of a recruiting expert, Brig. Gen. Harold N. Gilbert. This same officer was awarded the Distinguished Service Medal in 1941 for building up the Army, prior to Pearl Harbor, in the largest peacetime recruiting program the Army had ever attempted up to that time.

SALVAGE AND SURPLUS

In March, our 230th Quartermaster Salvage Collecting Company in Italy delivered 38,143 pounds of soap to ration dumps. The 299th Quartermaster Salvage Repair Company, with our Fifth Army in Italy, devised a means of reclaiming thousands of dollars worth of equipment from piles of rusted, coal-blackened kitchen and mess gear. A power-line of wire brushes was devised to clean and burnish discarded utensils, while a sand blast machine was made to clean formerly discarded knives, forks, and spoons. The only expense to the Government was for gasoline to operate the improvised machinery.

In August, 700 German prisoners of war were sent to Alaska to salvage lumber needed in the Pacific Theater.

From July, 1942, more than 12,160,000 pairs of military type shoes were rebuilt at an approximate saving of $1.15 per pair, or a total money saving of $13,978,000, plus the important saving of a critical item, 30,401,000 square feet of military quality upper leather.

Machine tools and production equipment, 33,158 pieces, costing originally about $150,000,000, were released as surplus in May, June, and July. Other surplus released in May, June and July to the disposal agencies included:

3,159	wool and leather jackets, cost $39,302
11,742	pairs of high-top leather boots, cost $139,729
5,200	rubberized and oil treated raincoats, cost $88,811
8,000	parka type women's raincoats, cost $62,800
2,209	sleeping bags, cost $42,280
3,885	tons animal food (chiefly hay and grain), cost $224,632
14,794	pairs of snowshoes, cost $64,649
66,490	watch compasses, cost $199,470
68	marine tractors, cost $535,855
53	marine engines, cost $1,791,126
538	pieces of road building equipment (tractors, graders, bulldozers, cost $1,743,637
	Drugs and medicines, including tannic acid, mercurochrome, peptone, phenol, digitalis, cost $495,813
438	telescopes, cost $30,660
22,966	steel tool cabinets, cost $344,000
565,800	dust respirators, cost $459,552
619,700	radio tubes, cost $3,752,692
1,492	rectifiers, cost $3,973,646
756,000	pounds raw rubber, cost $249,480
1,419,628	ampules of 20 c.c., chemical disinfectant (methyl bromide), cost $1,432,607
5,030,000	steel tubing, cost $140,799
766	radio transmitters, cost $1,194,600
6,300	fire extinguishers, cost $230,084

Salvaged and surplus material was sold to the Dutch East Indies Government to the amount of 65,000 tons for $20,000,000. In the last half of August, the Corps of Engineers released to disposal agencies $145,000,000 worth of surplus materials.

In September, theater commanders declared 112,042 motor-powered vehicles and 11,000 trailers as surplus. In the same month, nearly $21,000,000 worth of Army snow and winter clothing and equipment was scheduled for sale as surplus. From sales of wool and cotton clippings and of scrap leather and metal, three Quartermaster Depots recovered $3,866,537 for the Government in one year. In the first six months of 1945, oil and gasoline drums to the number of 1,822,000 were reclaimed at a cash saving of $4,555,000 and a material saving of 65,000 tons of heavy gauge steel. In August, construction equipment (tractors, cranes, graders, hoists, drills, snow plows, derricks, etc.) to the value of $30,000,000 was released as surplus. By mid-August, the value of Army property reported to disposal agencies since the war began was $4,000,000,000.

STRIKES

Periods of industrial unrest punctuated our production efforts, both before and after the cessation of hostilities. In January, the President directed the Secretary of War to take over and operate the Cleveland Electric Illuminating Company because a strike in that plant threatened to cripple war production vital to manufacture of parts for tanks, guns, trucks, and planes. In June, Secretary Patterson appealed to 17,000 striking workers at the Goodyear Tire and Rubber Company plant at Akron to return to work since their absence from work was a direct aid to our enemies.

RESERVE OFFICERS TRAINING CORPS

The War Department reopened advanced courses in R.O.T.C., and those who can qualify are to be paid a monthly allowance of approximately $370 per month. In addition, during attendance at a six-week R.O.T.C. camp, members would receive between $70 and $75 pay. These inducements are in addition to those which veterans may receive while attending college under the GI Bill of Rights. The basic R.O.T.C. course had been kept operative during the war. The first R.O.T.C. classes were graduated in 1920; since then, more than 160,000 men have been commissioned 2d Lieutenants, O.R.C.

EDUCATIONAL PROGRAM

In the program of education for troops in the European theater of operations, provision was made for setting up schools in battalions and similar military units; in civilian educational institutions; in special Army University Centers; in centralized vocational schools; and in study-by-correspondence systems. First of the university centers was opened in July at Shrivenham, England. The University of Florence, Italy, under this plan, also opened in July with 1,320 students.

TRANSPORTATION CORPS

This Corps operated speedily and efficiently to get returning soldiers home swiftly. Men were debarked from ships at the rate of 1,000 per hour. American Red Cross workers met them with food, milk, and coffee; then, by bus, plane, and train, they were taken to barracks to be processed for the final journey home.

From June, 1944, through May 8, 1945, the Corps had handled the following amounts of supplies destined for invasion forces in Europe:

To Marseilles	3,259,336 tons
Cherbourg	2,697,341 "
Antwerp	2,665,347 "
LeHavre	1,169,162 "
Rouen	1,164,891 "
Ghent	614,861 "
Port de Bouc	467,451 "
Nice	14,478 "

In the movement of troops and supplies into the Pacific, nearly 2,500,000 troops and more than 44,000,000 ship tons of cargo were sent from West Coast points from December, 1941, through August, 1945.

For the entire effort, the volume of supplies exported was so tremendous that it totaled more than 14 times that shipped abroad in the First World War. In actual figures it amounted to 126,859,000 ship tons, while the comparable total for the First World War (20 months) was 8,883,297 ship tons.

For port records of 45-month period of the war, see table, page 377.

The Army's great ports of embarkation handle two-way traffic. The bulk of their work was devoted to processing returning troops. From VE-Day through the end of August, more than 1,225,000 incoming troops were received. The great majority, or 1,110,000, came from Europe or other inactive Atlantic theaters through East Coast ports, principally New York, Boston, and Hampton Roads.

UNIFICATION

On Oct. 17, Secretary of War Patterson spoke before the Senate Military Committee on the subject of unification of administrative control of our armed forces. Prefacing his opinion on the question, he said: "After every great war, we see a popular revulsion. The inclination of the American now is to blot out and forget the horror and brutality and privation of World War II. But we who have directly laid upon us the responsibility for the future security of our country cannot run away from that responsibility. We must constantly give our best thought and our unremitting effort to safeguarding the peace which has again been restored to the world." Secretary Patterson then made clear his position on the main issue: "In my opinion, the unification of our armed forces is an essential step in the development of a sound program for the future security of the American people."

The following day, General Marshall, appearing before the same Com-

TROOPS AND ARMY CARGO SHIPPED TO OVERSEAS THEATERS

(December, 1941, through August, 1945)

	Troops[1]	Cargo Ship Tons
Total for All Ports	7,306,000	126,859,000
Boston	741,000	9,399,000
New York	3,184,000	37,800,000
Philadelphia#	500	5,893,000
Baltimore#	1,350	6,504,000
Hampton Roads	725,000	12,522,000
Charleston	36,000	3,216,000
Total East Coast Ports	4,687,850	75,334,000
Total Gulf Coast Ports (New Orleans & Others)	167,000	7,239,000
Los Angeles	188,000	8,645,000
San Francisco	1,655,000	22,751,000
Portland*	53,000	1,731,000
Seattle	524,000	10,219,000
Prince Rupert*	31,000	940,000
Total West Coast Ports	2,451,000	44,286,000

[1] Includes small portion of Allied troops and civilians traveling on official Government business.
# Cargo Ports of Embarkation.
* Sub-Ports of Embarkation.

mittee stated his accord with Secretary Patterson's views. General Marshall in pleading for unification said: "The national security is measured by the sum, or rather the combination of the three great arms—the land, air, and naval forces. The urgent need is for an over-all, not a piecemeal, appraisal of what is required to solve the single problem of national security with the greatest economy compatible with requirements. I am strongly convinced that, unless there is a single department for the armed forces . . . there can be little hope that we will be able to maintain through the years a military posture that will secure for us a lasting peace."

Another witness, General Jacob L. Devers, Commanding General of the Army Ground Forces, on Nov. 14, affirmed his agreement with Secretary Patterson's views. In his closing statement, General Devers said: "To fight the war of the future will require the elimination of our service consciousness which, in my opinion, can be obtained only by combining the Offices of the Secretary of War and Secretary of the Navy into a single department with its resultant evolutionary unification of the Army, Navy, and Air Forces."

General Omar N. Bradley followed on Nov. 15 with this statement, "On my experience as a combat commander in the field only, I am convinced that we must have unified command in time of war . . . unless there is unity of control at the top in peacetime, there can be no immediately effective unity of field command in wartime."

General Eisenhower, Nov. 16, lent the weight of his opinion to unification, closing in these words: ". . . there is no such thing as a separate land, sea, or air war; therefore, we must now recognize this fact by establishing a single department of the armed forces."

WOMEN'S ARMY CORPS

In January, formation of a Negro WAC unit was announced to serve as a postal battalion abroad. In Bermuda, an officer and 58 enlisted of the WAC reported for the first time in that country for duty with the Air Transport Command. Again for the first time, 28 of the Corps attended Army Air Force Chaplain Transition

Course. Fifty-eight Hawaiian women were brought to Continental United States and given basic training in the WAC for assignment to Army installations.

On Feb. 1, 1945 recruiting was begun to build up WAC medical units in General Hospitals. Seven women of the WAC replaced men as radio operators on U. S. Army hospital ships in March. Purdue University opened a school for WAC officers assigned to administrative duties. In May, age limit for enlistment in WAC was lowered from 50 to 38. For return to the United States, the first WAC contingent left Italy on June 5 by air. Twenty-seven WAC members of the 341st Signal Service Battalion operated the Big Three Conference switchboard at Potsdam, Germany.

Aug. 2, plans were announced to recruit 10,000 additional women for the WAC; August 29, enlistment in the WAC was discontinued and plans were made to demobilize on a proportionate basis with men in the Army.

REDEPLOYMENT

The end of the war in Europe focused attention on problems involved in defeating Japan with especial reference to the size of the Army required to do the job. The Joint Chiefs of Staff, after consultation with General MacArthur and Admiral Nimitz, made a preliminary estimate of troops and equipment necessary to crush Japan in the shortest possible time and with the smallest cost in American lives.

In May, our Army strength was 8,300,000. For the spring of 1946, a strength of 6,968,000 was planned since that figure represented all the strength it was believed could be effectively deployed against Japan, plus the maintenance of occupation forces in Europe, and training and supply forces in the United States. The Japanese had an organized military force of more than 4,000,000 men, in addition to many more who could be utilized for service forces or, if need be, combat. Some were in the Japanese home islands; some in China; some in Manchuria and Korea; some in far scattered parts of the Pacific and in the East Indies. The first necessity then of our forces was to keep these enemy forces apart and, when our bases were established and our armies deployed, strike with overwhelming power for a quick decision.

The necessary Pacific force had to be built from three elements: (1) troops already in the Pacific area; (2) physically fit soldiers in the United States who had not yet served overseas; and (3) troops who could be moved from the European to the Asiatic theater of operations. This latter group involved the greatest transportation problem ever undertaken in war. Distances were tremendous—from Europe to Manila, by way of the Panama Canal, 14,000 miles; from San Francisco to Manila, 6,771 miles—and over all other considerations was the need for speed so that the enemy could not rest or have time to reorganize his defenses.

Initial plans called for shipment straight from Europe to the Orient as well as for taking as many troops as possible through the United States. These latter soldiers had furloughs arranged en route as well as training periods in the United States, since conditions of fighting the Japanese were known to be radically different from those encountered in fighting the Germans. The bulk of those who went directly to the Pacific from Europe were service troops necessary to construction of communications, harbors, bases, and required airfields.

Comparative figures give some idea of the size of the job. After the First World War, it took a year to bring back the 2,000,000 men of the A. E. F. In 1945 we had to move double that number out of Europe, and a large number of them had to be transported over 14,000 miles of ocean to the far reaches of the Pacific. Equipment and supplies, both from Continental United States and from Europe, had to be provided for our soldiers scheduled to fight Japan. Therefore, every ship that could be pressed into service was used, including converted cargo and grain ships, regular passenger ships, troop transports, and the mighty passenger liners, *Queen Elizabeth, Queen Mary, Europa,* and *Aquitania.* To aid in this work, by carrying 50,000 men per month, 800 transport planes were assigned, scheduled to bring out combat troops from the heart of Germany, men with long periods of combat service. Demobilization, although secondary in urgency to redeployment, was not set aside for there were many men eligible for discharge and not scheduled to fight against Japan. These were entitled to speedy return from Europe. Every facility of the globe-girdling Air Transport Command, with its hub at Casablanca, was pressed into service to aid in this tremendous, two-pronged job.

The Army's plans for redeployment and readjustment of its manpower, after victory in Europe, were told in a technicolor film, "Two Down and One to Go," released to the public for propaganda purposes.

Those coming from Europe and going to Japan *via* the United States were scheduled for training in this country in carefully selected Army camps and stations. This training had one objective—to improve the preparation of veterans of the German war to meet their new enemy by acquainting them with Japanese tactics, and with the climatic, terrain, and health conditions encountered in the Pacific areas. The training was especially severe.

Arrangements were made in the redeployment so that men coming through the Port of New York would be processed through Camps Shanks, Kilmer, and Fort Hamilton; those through Hampton Roads would be handled at Camp Patrick Henry; those at Boston, through Camp Myles Standish; those at New Orleans, through Jackson Barracks.

On July 5, the Secretary of War's Office reported that the movement of troops from Europe was right on schedule. In the six weeks following May 20, when the first ship bearing troops for redeployment docked in this country, a total of 340,000 soldiers arrived in the United States from Europe and Atlantic bases.

July 8, the War Department announced that the complete Infantry Divisions already back in the country, with personnel on furlough prior to assembling again for training, were the 86th, 97th, and 95th. Elements of the 104th and advance detachments of the 2d, 4th, 5th, 8th, 44th, and 87th Infantry Divisions as well as part of the 13th Armored Division had come back to the United States, along with Headquarters, First Army. In practically all cases, men returning from Europe with point scores under the minimum for discharge were the ones scheduled for redeployment to the Pacific.

Original planning schedules of the War Department set up the following listings of divisions to embark from the European and Mediterranean Theaters:

July:—13th Armored; 87th, 4th, 8th, 2d, 5th, 44th Infantry.
August:—20th Armored; 85th, 28th, 30th Infantry.
September:—14th, 5th, 6th, 7th Armored; 17th Airborne; 88th, 91st, 35th, 45th, 103d Infantry.
October:—9th Armored; 92d, 26th, 79th, 99th Infantry.
November:—10th Armored; 10th Mountain; 13th Airborne; 83d, 63d, 106th Infantry.
December:—2d, 11th Armored; 34th, 98th, 80th, 76th Infantry.

At the same time that the above listing was published, the following divisions were announced to be held in Europe as part of the occupational forces: 1st, 4th Armored; 82d Airborne; 1st, 3d, 9th, 36th, 29th Infantry. At least for the remaining months of 1945, the following divisions were scheduled to remain in Europe: 3d, 8th, 12th, 16th Armored; 101st Airborne; 42d, 65th, 66th, 69th, 70th, 71st, 75th, 78th, 84th, 89th, 94th, 100th, 102d Infantry. This was the original schedule; later events modified the whole program.

In addition to the tremendous complexity of handling a redeployment and demobilization problem concurrently, the Secretary of War's Office was plagued by insistent demands of industrial and professional groups for the release of men from the Army for civilian needs. Such requests ranged from 110,000 men for the coal mines to three men for breeding mice. Loggers, longshoremen, policemen, firemen, teachers, ministers, college students, farmers, dairymen, doctors, dentists, engineers, draftsmen, railroad and textile workers, shipyard mechanics, hard-rock metal miners, tire builders—all were urgently needed at home. The Secretary of War pointed out that he could not accede to these requests since it would have meant the release from the Army of at least 1,000,000 men, with an immediate breakdown of the merit-system of discharge. That system gave first consideration to those who had served the longest, who had fought the hardest, and who had children. Civilian skills had no part in the points-for-discharge system thus set up. Incidentally, the system had been established on the bases of the expressed beliefs of the enlisted men themselves.

With the collapse of Japan on Aug. 14 came the need for readjustment and curtailing of the whole redeployment program. On Aug. 22, Major Gen. Charles P. Gross announced that, as a result of the Japanese surrender, more than 225,000 measurement tons of war cargoes on Pacific-bound ships in United States ports and more than 110,000 tons of War Department railway freight had been turned back; 27 Army-allocated freighters were ordered to discharge their cargoes at ports of embarkation; 11 freighters were called back after sailing from American ports; 39 cargo vessels were ordered back to European ports from which they had sailed for Pacific destinations. More than 5,400 railroad cars carrying Army freight destined for use against Japan were also diverted.

The curtailment of redeployment made necessary the immediate drastic adjustment of demobilization programs. On Sept. 5, General MacArthur recommended that ". . . . only three of the six divisions allocated for redeployment be sent to the Pacific." The War Department thereupon named these three as the 86th and 97th Infantry and the 13th Airborne. From these, the 13th Airborne was subsequently deleted.

Training work at the camps set up to handle troops scheduled for redeployment came to an end. In June, the following installations had been specifically named to serve the Divisions indicated: Camp Swift, Tex., 2d; Camp Butner, N. C., 4th; Camp Campbell, Ky., 5th; Fort Leonard Wood, Mo., 8th; Camp Cooke, Calif., 13th Armored; Camp Gruber, Okla., 86th; Fort Benning, Ga., 87th; Camp Shelby, Miss., 95th; Fort Bragg, N. C., 97th; Camp San Luis Obispo, Calif., 104th.

DEMOBILIZATION

On May 10, Secretary of War Stimson had this to say about demobilization: "It is the earnest desire and the firm intention of the War Department to restore the men who have come into the Army in this emergency to their homes and families as rapidly as the military situation permits. The defeat of Germany gives us our first large-scale opportunity to do this, and we have developed a program based on the principle of justice and equity for each individual to select those soldiers who are entitled to leave the Army first."

The Secretary visualized the release of 1,300,000 officers and men and members of the WAC by May, 1946.

The plan was keyed to an Adjusted Service Rating Card, with May 12, 1945 as a stop date, when point totals towards separation from service were entered. These points were based on four types of credit, viz:

Service Credit—1 point for each month of service since September 16, 1940.

Overseas Credit—1 point for each month served overseas since September 16, 1940.

Combat Credits—5 points for the first and each additional award or decoration for service performed since September 16, 1940. In the Army these awards were: Distinguished Service Cross; Legion of Merit; Silver Star; Distinguished Flying Cross; Soldier's Medal; Bronze Star Medal; Air Medal; Purple Heart; and Bronze Service Stars (battle participation stars).

Parenthood Credit—12 points for each child under 18 up to a limit of three children.

Between May 12 and July 31, 1945, using a score of 85 points as necessary for separation, 235,000 long-service soldiers were discharged from the Army. By Aug. 15, Secretary Stimson had radically revised his estimate as to numbers that could be discharged. He said: ". . . . we shall try desperately to discharge five million high point men in the next twelve months. The greatest number we ever sent overseas in a year was about 2,500,000. We now expect to get enough men back fast enough to discharge 5,000,000 men in twelve months."

On Sept. 3, the first reduction in points was announced when 85 points as a requirement were dropped to 80 and points for WAC members were reduced from 44 to 41. Addressing members of Congress in the auditorium of the Library of Congress on Sept. 20, General Marshall said: ". . . . we are going down to a critical score for enlisted men of 70 points on October 1 and to 60 points on November 1." On October 26, the War Department announced that, through October 21, more than 2,000,000 soldiers had been discharged from the Army since VE-Day, with an additional 250,000 expected to be returned to civilian life by Nov. 1. The demobilization program was running far ahead of schedule.

On Nov. 16, a further reduction in necessary discharge points was announced. Under the new demobilization schedule, which went into effect Dec. 1, the following eligibility standards were established: Male enlisted personnel were eligible for discharge if they had—55 points as computed on Sept. 2, 1945, or four years of honorable military service, or three or more children under 18 years of age dependent upon them for support. In addition, certain previously established factors effecting discharge were kept in effect, to wit, if the enlisted man was 35, 36, or 37 years of age and had completed two years of honorable military service, or if he was 38 years of age, regardless of the period of his military service.

Enlisted members of the WAC were eligible for discharge under this revised table if they had 32 points as computed on Sept. 2, 1945, or, if married, regardless of when, and enlisted prior to May 12, 1945. A WAC member could also get out if she were 35, 36, or 37 years of age, with two years of honorable military service, or 38 years of age regardless of the period of her military service. The Dec. 1 schedule for separation of male officers was (excluding Medical Department)—73 points as computed on Sept. 2, 1945, or four years three months of honorable military service. Any who were 50 years or over were also eligible for discharge. WAC officers needed 37 points as computed on Sept. 2, 1945, or they could be released if married and enlisted prior to May 12, 1945 or if they were 40 years of age or over.

Comparison of First World War and Second World War demobilizations brings out some striking facts. On Nov. 11, 1918, the strength of the American Army was 3,673,888 and, of these, 1,929,760 were serving overseas, most of them in France. It was decided to demobilize by military units and also to discharge men as near their homes as possible. Thirty-three demobilization centers were set up. Men in this country, without overseas service were discharged wholesale before any arrived from Europe. After the Second World War, putting into effect the long-planned point system, 3,114,000 men had been discharged, in an orderly and equitable manner by Nov. 16, 1945—more men than were in the whole AEF of the First World War. Whereas 33 demobilization centers were in use in 1918-19; Second World War men were handled by 27 such centers. The progress of demobilization, for 7 months after hostilities in each of the wars can be seen in the following table:

First World War		Second World War	
1918		1945	
November (11-30)	44,002	May (12-31)	56,000
December	621,203	June	156,000
1919			
January	332,666	July	164,000
February	307,398	August	205,000
March	306,250	September	597,000
April	285,328	October	1,270,000
May	437,389	November	1,200,000
	2,334,236		3,648,000

After the First World War, troops from France began getting back to this country in the spring of 1919—the overseas service men were the last to be discharged. In 1919 it took an average of from three to four weeks after arrival in the United States to be discharged. After the Second World War, by releasing the men not in military units but as individuals, on the basis of their service, the overseas man was not discriminated against, and when he arrived at a separation center in the United States, he was separated from the Army, on an average, within 48 hours.

Medical Corps personnel, handled separately, were released rapidly to civilian life. The Army's quota of 13,000 doctors to be released to civilian life by Dec. 31, 1945 was exceeded by Nov. 21. From a peak strength of over 45,000 doctors, Surgeon General Norman Kirk announced that all but 11,000 would be out of military service by June 1, 1946. For the week ended Nov. 16, 1945, the total of nurses released was 20,222 and for dentists, 2,460.

WAR CONTRACT TERMINATIONS

Demobilization of manpower brought with it cutbacks in the items of food and equipment which had been contracted for by the War Department for a war job. Secretary Patterson, April 3, announced a sharp cut in facilities projected for Autumn. On April 25, because of reduced consumption of some items in the European theater of operations, further cuts in war production were put into effect. Foreseeing the necessity of handling commercial details smoothly, the War Department set up a new type pre-termination-of-contract plan to facilitate inventories of goods under contract and production when war should end. A few instances of contract terminations, by no means complete, are given to show a cross-section of this phase of demobilization.

Contracts for more than 10,000,000 pairs of combat boots, service shoes, and shoe pacs, scheduled for December delivery, and amounting to $59,000,000, were cancelled in August. A total of 220 government-owned plants producing for the Army Service Forces, and 32 for the Army Air Forces were marked for disposal through the Reconstruction Finance Corporation. In this same month the following items were cancelled:

13,000,000	packages of cigarettes	$ 300,000
	soluble coffee	790,000
600,000	pounds of processed cheese	
4,883,000	pounds of dehydrated onions	
1,604,000	pounds of carrots	
	gasoline and lubricants	19,011,468
	petroleum containers	24,000,000
	canned vegetables cut 44% over July estimates	
	canned fruits cut 46%	
173,742,914	sq. yds. of cotton, rayon, and nylon	83,646,270
10,000,000	pounds of jelly	
27,000,000	pounds of marmalade	
22,500,000	pounds of jam	
18,500,000	pounds of peanut butter	
12,500,000	pounds of pilchards	
74,645,000	pounds of dehydrated potatoes	
	salmon requirements cut to 40,000,000 pounds or less than half the amount previously thought necessary.	

On August 24, the War Department announced release of 254,987 tires, costing $5,243,609, for disposal as war surplus.

The Army announced in September it had arranged to terminate its butter procurement program and that it was also going to buy chickens in the open market. Some of the contract terminations were:

cigarettes	163,135,000 packs	$8,156,750
salted peanuts	10,000,000 pounds	3,500,000
chewing gum	20,000,000 packages	600,000
cornstarch	742,500 pounds	63,855
chili con carne	6,617,702 pounds	1,200,000
candy bars	257,000,000	
frozen whole eggs		812,400
spices	1,500,000 pounds	
salt	6,000,000 pounds	
salad oil	803,000 pounds	
canned pork	60,000,000 pounds	
dehydrated vegetables	30,000,000 pounds	

Showing the value of the pre-termination-of-contract plan, the Colorado Fuel and Iron Corporation stated in September that "the consolidated pre-termination settlement agreement between the Colorado Fuel and Iron Corporation and the United States has permitted the immediate determination of all termination problems and permitted this company to clear the plant of termination inventories." Some further contract terminations were: evaporated milk 100,000,000 pounds; burlap, 5,000,000 yards; evaporated and dried fruit, 25,000,000 pounds; and miscellaneous food items, 77,000,000 pounds.

Three months after the end of hostilities, the Boston Ordnance District had completed the settlement of all war contracts, the first of the Army procurement districts to report completion of all phases of its termination job with respect to its own prime contracts, including settlement of the cancelled war contracts and clearance of plants for civilian production. Government and business, as the year ended, were working hand-in-hand to bring about speedy, economically sound return to normal, peacetime pursuits.

NAVAL CONSTRUCTION AND EQUIPMENT

By John C. Niedermair
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GENERAL

The situation with regard to Naval Construction and Equipment has changed materially since Aug. 14, 1945, when the Japanese gave up their attempt to rule the Pacific. Since that time there have been many cancellations of contracts, which was to be expected in view of the stoppage of war on all fronts. The state of the Navy, as reported on Aug. 15, 1945, by the Navy Department press release amply covered the situation with the statement that "World War II saw the United States Navy become the greatest seapower in the history of the world—a force so powerful it roamed wherever and whenever it desired."

The story of this giant growth was not merely one of building thousands of ships and procuring hundreds of thousands of men. It was also a story of how civilians were quickly converted into Naval officers and men for a war which accepted as commonplace such new terms as "amphibious warfare," "rocket propulsion," "radar," and "suicide" planes.

The Navy once more outfought the German submarine menace in the Atlantic. In the Pacific war, long distances were met by such new means as great floating drydocks and supply forces which refueled and replenished fleets with hardly an interruption of operations against the enemy.

The "two-ocean" Navy authorized by Congress on July 1, 1940, took form rapidly, expanding from approximately 4,500 vessels of pre-Pearl Harbor days to 91,209 vessels of all types by July 1, 1945. The Navy completed 1,265 combatant ships, including 10 battleships, 27 larger aircraft carriers, 110 escort carriers, and 45 cruisers in this same period.

To man this Navy, the July 1, 1940 personnel of 160,997 was enlarged to 3,389,000 on June 30, 1945. The Marine Corps was expanded from 28,364 to 476,709, and the Coast Guard personnel climbed from 13,766 to 171,192.

Expenditures under the Navy War Program during the five years aggregated $90,500,000,000, almost two-thirds of the $138,600,000,000 which the Navy was authorized to obligate.

The peak of commitments was reached in the first half of 1942—following Pearl Harbor—when the total was $17,100,000,000.

Naval carrier based planes stepped forth in the war as a powerful arm of the Navy, its 1944 record accounting for at least 3,291 Japanese planes, more than half of the 6,077 engaged, which were destroyed in aerial combat.

The rate of fire power of Naval guns installed on ships was increased from 411 tons of projectiles to 4,500 tons per 15-second period during the five years.

On July 1, 1945, when the war was going full blast, the Navy contemplated completing during the succeeding two and a half years an additional 2,800,000 tons of ships, including 213 combatant vessels of 1,600,000 tons.

Construction and maintenance of Navy shore facilities, civil works and advanced bases for the fleets, cost $8,100,000,000 during the five years.

FINANCE

The scope and expansion of the Navy's war program were vast, as shown by financial data embracing the Navy, Marine Corps, and Coast Guard in the five years since July 1, 1940. Appropriations and allocations to the Navy for lend-lease purposes were considered part of the Navy program and were included in the figures announced.

From July 1, 1940, through June 30, 1945, the Navy received authorizations (authority to obligate) totaling $138,600,000,000. Through June 30, 1945, commitments totaling $110,300,000,000 had been made from appropriations of $110,800,000,000, in the form of contracts, orders, project orders, signed letters of intent, and all other legal obligations, plus requisitions, unsigned letters of intent and bureau allotments. A balance of $28,300,000,000, therefore, had not been committed as of July 1, 1945.

The distribution of the program by major bureaus was as follows:

Bureau	Dollars (In Billions)	Percentage
Ships	$40.1	29%
Supplies and Accounts	29.6	21
Aeronautics	26.1	19
Ordnance	23.9	17
Yards and Docks	9.5	7
All Others	9.4	7
Totals	$138.6	100%

The difference of $27,800,000,000 between authorizations and appropriations represented $21,100,000,000 in appropriations in the Naval Appropriation Act, 1946, approved May 29, 1945, but not available for expenditure until July 1, 1945, and $6,700,000,000 in unfinanced contract authority. Funds to liquidate any obligations incurred under this contract authority would have been provided in subsequent appropriation acts.

Expenditures from July 1, 1940, through June 30, 1945, amounted to about $90,500,000,000, or almost two-thirds of the total program.

The progress of the Navy War Program may be measured by commitments (a measure of work undertaken) and expenditure (a measure of work accomplished).

The peak half-year period for commitments was reached in the first half of 1942, following Pearl Harbor, when the total was $17,100,000,000. During each of the five half-year periods following, commitments declined steadily to a low of $9,500,000,000 in the last half of 1944, despite the fact that commitments for maintenance were rising in that period.

The declining trend of total commitments was reversed during the first six months of 1945, when commitments rose to $14,200,000,000, a half-year total exceeded only by the $17,100,000,000 after Pearl Harbor. This marked reversal of trend was owing chiefly to increased commitments by the Bureau of Aeronautics and the Bureau of Ships.

Commitments under the appropriation "Aviation, Navy" of $3,600,000,000 in the first half of 1945 were five times as great as commitments of $700,000,000 in the last half of 1944. That increase reflected upward revisions in the naval aircraft production program (increased fighter plane requirements for carriers and lengthened "lead time" between placing of aircraft contracts and scheduled deliveries).

Commitments made by the Bureau of Ships in the first half of 1945 totaled $2,700,000,000, or double the $1,300,000,000 for the last half of 1944. That increase reflected the rising commitments for maintenance of an expanding fleet, together with growing procurement requirements for battle damage repairs.

The acceleration of the Navy War Program was strikingly emphasized by the increasing rate of expenditure since July 1, 1940. Starting with $900,000,000 in the second half of 1940, expenditure rose during each succeeding half-year interval, with one exception, to about $15,900,000,000 in the first half of 1945. Unusually large advances to the Army for aircraft and ordnance totaling $13,700,000,000 in the first half of 1943 exceeded the total of $12,200,000,000 for the second half of 1943.

For two and a half years expenditures had been running at a rate in excess of or equal to new commitments. During the first half of 1943, partly because of the advances to the Army mentioned above, expenditures exceeded commitments, while during the second half of 1943 the two figures were equal. During the first half of 1944 expenditures were 21 per cent in excess of commitments, while during the last half of 1944 expenditures of $14,900,000,000 were 57 per cent greater than commitments of $9,500,000,000. However, in the first half of 1945, expenditures of about $15,900,000,000 were only 12 per cent greater than commitments of $14,200,000,000, commitments having increased sharply over the total for the previous half-year.

Authorizations, appropriations, commitments and expenditures by bureaus were as follows:

Bureau	Authorizations (In Billions)	Appropriations (In Billions)	Commitments (In Billions)	Expenditures (In Billions)
Ships	$ 40.1	$ 35.2	$ 35.7	$ 29.7
Ordnance	23.9	19.0	17.1	13.3
Aeronautics	26.1	21.4	20.8	15.0
Yards and Docks	9.5	6.8	7.8	6.7
Supplies and Accounts	29.6	21.2	22.0	19.8
All Others	9.4	7.2	6.9	6.0
Totals	$138.6	$110.8	$110.3	$ 90.5

SHIPS

The "two-ocean" Navy authorized by Congress on July 19, 1940 was expanded by the demands of a global war into a fleet of five-ocean proportions by pre-war standards. On July 19, 1945, the United States had 91,209 vessels of all types, compared with the pre-Pearl Harbor fleet of about 4,500 vessels.

Expanded capacity of industry and of Navy and private yards assured the production of these vessels. At the same time, research and engineering genius built more speed and firepower into the traditional types of combat ships and developed new types to meet new problems of aerial and amphibious warfare. The hostile shores invaded and the enemy ships and planes sunk attested to the effectiveness of these new developments.

During the rapid expansion, 109,999 vessels of all types were built, acquired, or converted, including 1,265 major combatant ships displacing 4,300,000 tons. This compared with 383 major combatant ships in the fleet five years ago.

These combatant vessels included 10 battleships, four of which were of the 45,000-ton *Iowa* class; 18 aircraft carriers, all but one of which were of the 27,100-ton *Essex* class; nine small aircraft carriers of the *Independence* class; 110 escort carriers; two large cruisers; 10 heavy cruisers; 33 light cruisers; 358 destroyers; 504 destroyer escorts, and 211 submarines.

Over the five-year period, July 1940 to July 1945, the value of the Navy's new construction of all types of vessels, including Maritime Commission escort carriers, was approximately $19,100,000,000 for construction and machinery and $4,800,000,000 for armor, armament and ammunition. Combatant ships accounted for about 55 per cent of the construction and machinery cost, or $10,500,000,000, and about 67 per cent of the armor, armament, and ammunition cost, or $3,200,000,000.

Up to July 1, 1945, the Navy lost 2,003 vessels, displacing 792,000 tons and comprising 147 combatant ships, 45 minecraft, 99 patrol craft, 55 auxiliaries, 151 district craft and 1,506 landing craft, the latter composed of LSM's, LST's, LCS(L)3's, LCI(L)'s, LCI(G)'s, LCT(5) and (6)'s, LCC(1) and (2)'s, LCM(2), (3) and (6)'s, LCP(L)'s, LCP(R)'s, LCS(s) (1) and (2)'s, LCV's and LCVP's. The losses embraced one battleship (not including the *Oklahoma),* five carriers, six escort carriers, six heavy cruisers, three light cruisers, 70 destroyers, nine destroyer escorts and 47 submarines, totaling 464,000 tons.

Additional 5,346 vessels totaling 1,037,000 tons were leased to our allies. They included one light cruiser, 38 escort carriers, 92 destroyer escorts, and nine submarines, with a combined displacement of 510,000 tons. In addition, the Navy transferred more than 15,800 vessels totaling 378,000 tons, mostly small landing craft for the Army; and another 433 vessels of 132,000 tons were stricken from the Navy list.

During the next two and a half years the Navy contemplated, on July 1, 1945, completing the construction of additional 2,800,000 tons of ships, including 213 combatant vessels of 1,600,000 tons. This combatant total would consist of two battleships, nine *Essex* class carriers, three large (45,000-ton) carriers, two small carriers, 26 escort carriers, one large cruiser, 22 heavy cruisers, 19 light cruisers, 86 destroyers, five destroyer escorts, and 38 submarines. Some of these have been launched and others are practically completed. Following the surrender of Japan, a complete review was made of the status of construction and conversion program of auxiliaries, landing craft, district craft and small boats, in consequence of which the total number of cancellations was raised as follows:

Combatant ships	56
Auxiliaries	94
Landing ships	2
Patrol craft	44
District craft	121
Small landing craft	Over 8,000

ELECTRONIC DEVELOPMENTS

The most startling growth in technical developments for ships of the modern fleet was in the field of electronics, including radar and radio. Since July 1940, the Bureau of Ships awarded $4,400,000,000 in contracts for radar, radio and other electronics equipment, including equipment for the Bureau of Aeronautics, other services and lend-lease. The fact that $800,000,000 of this total had been eliminated through cancellations and adjustments, attested to the rapidity of development, with many of the cutbacks being offset by later awards for equipment of improved design.

MAJOR COMBATANT SHIPS

The total number of major combatant ships of the Navy on July 1, 1945, were: battleships, 23; aircraft carriers, 20; small aircraft carriers, 8; escort aircraft carriers, 70; large cruisers, 2; heavy cruisers, 22; light cruisers, 48; destroyers, 373; destroyer escorts, 365; submarines, 240. Vessels completed during the five-year period included: Battleships—*North Carolina, Washington, South Dakota, Indiana, Massachusetts, Alabama, Iowa, New Jersey, Wisconsin, and Missouri.* Aircraft Carriers—*Hornet, Essex, Lexington, Yorktown, Bunker Hill, Intrepid, Hornet, Wasp, Franklin, Hancock, Ticonderoga, Bennington, Randolph, Shangri-La, Bon Homme Richard, Antietam, Boxer,* and *Lake Champlain.* Large Cruisers—*Alaska* and *Guam.* Heavy Cruisers—*Baltimore, Boston, Canberra, Quincy, Pittsburgh, St. Paul, Chicago, Bremerton, Columbus* and *Fall River.* Light Cruisers—*Atlanta, San Diego, Juneau, San Juan, Cleveland, Columbia, Montpelier, Denver, Santa Fé, Birmingham, Mobile, Oakland, Biloxi, Houston, Miami, Reno, Vincennes, Astoria, Pasadena, Vicksburg, Wilkes-Barre, Flint, Springfield, Duluth, Topeka, Oklahoma City, Atlanta, Amsterdam, Dayton, Tucson, Providence, Little Rock,* and *Portsmouth.*

AVIATION

Naval Aviation's war record vouched for the quality and number of planes produced and pilots trained during the past five years. Naval aircraft sank more than half of the enemy submarines sent to the bottom by the Navy. Navy and Marine aircraft destroyed more than 17,000 Japanese planes. Against this total, fleet plane losses in combat in the Pacific were about 2,700, a combat ratio of less than one to six.

Outstanding in the destruction of Japanese planes were carrier-based aircraft. Their 1944 record accounted for at least 3,291 Japanese planes, more than half of the 6,077 engaged, which were destroyed in aerial combat. On June 19, 1944, the day of the "Marianas Turkey Shoot," American carrier planes shot down 402 enemy aircraft during the Battle of the Philippine Sea.

The extent of Naval air power was demonstrated by the fact that, on July 1, 1945, approximately 11,000 planes, including planes in pools and in transit, were deployed in the Pacific.

The average age of Navy fighter planes in the Pacific theater was cut in half during the last year. New combat planes were arriving off Okinawa within three months of leaving the factory.

Supporting the fleet, as well as Naval Aviation, the Naval Transportation Service flew nearly 77,000,000 miles in 1945.

The Aeronautical Naval Shore Establishment grew from 38 naval air stations in July 1940 to 177, with the shore construction program virtually completed. Its value increased from $250,000,000 at the outbreak of the war to $1,333,000,000 in July 1945.

Naval aviation personnel, including Marines, on July 1, 1945, totaled 750,000, of whom more than one-half were on carriers or with air groups, squadrons and fleet service units. Combat losses were consistently smaller than expected. Moreover, approximately 65 per cent of all pilots forced down were rescued or found their way to safety.

Rocket propulsion and radar improvements appeared in Naval aviation during the five years. After 12 years of experimentation in which the Bureau of Aeronautics took part, the first successful anti-blackout suit was produced for combat in 1944.

Since July 1, 1940, the strength of the Naval Air Force grew from 1,741 service planes to more than 40,000. The average weight of planes delivered increased from 2,740 pounds in 1940 to 7,140 pounds in the first half of 1945.

The Navy accepted for all users 29,800 aircraft in 1944, compared with fewer than 10,000 during the year following Pearl Harbor. About 13,500 planes were accepted by the Navy in the first half of 1945, and a similar number was scheduled for the second half. Of the 80,300 planes accepted by the Navy in the five years, lend-lease received 7,500 and the AAF more than 600. The number of Naval planes lost in the Okinawa campaign would have required eight months to produce in 1941. Those losses amounted to only 12 days' production at the July 1, 1945, rate.

During the five years, the Navy accepted 62,391 tactical combat planes valued at $6,652,116,000 and with an airframe weight of 434,994,000 pounds. Of these, 29,877 were fighters, 11,983 were scout bombers (dive), 9,207 were torpedo bombers, 174 were four-engine bombers (patrol-sea), 3,751 were two-engine patrol bombers (sea), 1,569 were four-engine patrol bombers (land), 2,776 were two-engine patrol bombers (land), and 3,054 were observation scout planes.

There were 2,002 utility and 1,063 transport planes. Training planes numbered 13,632. Miscellaneous planes, including 29 helicopters, totaled 1,194. The tactical and training planes were valued at $7,347,371,000.

ORDNANCE

The fire power of naval guns was increased from 411 tons to 4,500 tons per 15-second period during the last five years as a result of new armament on older vessels. In addition, the Navy supplied guns and ammunition for 6,050 merchant vessels and exchanged various ordnance with the Army.

Although heavy emphasis was placed upon naval bombardment, procurement by the Bureau of Ordnance reflected the constantly changing character of naval warfare. The Navy's part in amphibious operations also called for large quantities of underwater demolition equipment for use on enemy inshore defenses, and barrage rockets for reducing shore installations.

The dependence upon naval bombardment was illustrated by the firing of 36,000 tons at Guam, Saipan, and Tinian; 7,000 tons at Peleliu; 16,000 tons at Iwo Jima; and almost 50,000 tons at Okinawa.

Meanwhile, a reduction in the number of large Japanese naval vessels was reflected in lessened procurement of armor-piercing ammunition. As the fleet approached closer to the islands of Japan additional 40 millimeter guns, special fuzes for 3-inch to 6-inch projectiles, latest type mines to block enemy harbors, and new radar-controlled blind-firing directors to meet the threat of Kamikaze suicide planes were procured.

The Army was supplied with fuses, explosives, rockets, and various aviation fire control equipment, including the Nordem bombsight. In turn, the Navy procured from the Army small arms and ammunition, certain bomb fuses, other explosives, and chemical warfare and ground equipment.

Overall procurement of major ordnance items reached a peak of more than $1,600,000,000 in the second half of 1944, having risen from about $40,000,000 in the second half of 1940. Procurement of non-expendables, such as guns and gun sights, began to decline in the last half of 1944, and a leveling-off of the procurement of expendables occurred in the last 12 months to July 1945, with increased demands for rockets offsetting reductions in ammunition items and torpedoes. The growing magnitude of the rocket program was expected soon to increase total procurement of expendables to higher levels than have so far been attained.

Among new ordnance items developed by the Navy in conjunction with other government agencies and private educational and commercial research institutions were a new three-gun turret assembly for heavy cruisers, a dual purpose turret assembly for light cruisers, a dual purpose single mount for new large carriers, blind-firing gun director systems for all anti-aircraft guns of 40 millimeter caliber and larger, various new types of rockets and launchers, new types of torpedoes and mines and improved special fuses.

Under the impetus of war, the Bureau of Ordnance was expanded during the five-year period from 47 officers, and 297 civilians in July 1940 to 1,373 officers, 601 enlisted personnel, and 1,477 civilians on June 30, 1945.

Until 1940, the Naval Gun Factory at Washington, D.C. produced practically all non-expendable ordnance equipment except certain fire control items, and all ammunition was assembled at Naval Ammunition Depots. Expansion of the Navy Ordnance program required new ordnance plants, depots, and other facilities, the cost of which totaled more than $850,000,000.

The Navy's ordnance program also was supplied by approximately 1,400 prime contractors and 20,000 sub-contractors. The necessary expansion of commercial production facilities involved technical and financial assistance for many private plants. From July 1, 1940, to July 1, 1945, the value of government-financed facilities and equipment added to these plants was about $390,000,000.

YARDS AND DOCKS

Construction and maintenance of Naval shore facilities, civil works, and advanced bases for ships of the fleet, cost $8,100,000,000 during the five-year period from July 1940 to July 1945.

The protracted bombardment of industrial and military installations on the Japanese home islands by Allied fleets and carrier planes attested to the logistic significance of advance bases in keeping the Navy's ships and planes on the front lines. These bases were built and maintained by the Construction Battalions, or Seabees.

From the peak of construction activity in the second half of 1942, when disbursements reached $1,800,000,000, there was a gradual downward trend until the end of the war. Continental construction expenditures declined steadily from the first half of 1943, but were offset by a steady rise in advance base expenditures as activity near the Japanese islands increased.

Construction in the continental United States showed a nominal reduction in activity during the first half of 1945, with the value of work done declining from $320,000,000 in the previous half year to $278,000,000. The backlog of uncompleted work under contract on July 1, 1945, totaled $203,000,000, while contracts in preparation aggregated $123,000,000.

On a cumulative expenditure basis, aeronautical facilities ranked first. Shipbuilding and repair facilities were next, followed by ordnance facilities and structures for naval personnel. During the first half of 1945, ordnance facilities accounted for $125,000,000 of work done, or 43 per cent of the total expended on continental and extra-continental construction exclusive of advance base procurement.

In addition, total expenditures for "civil works" amounted to $457,000,000 as of June 30, 1944. "Civil works" comprised construction at privately operated establishments which would constitute public works or public utilities if constructed at a Navy shore establishment.

To aid prosecution of the Pacific war, the Navy constructed a total of 150 floating drydocks with aggregate lifting capacity of 1,065,000 tons. These enabled the Navy to keep its ships in fighting shape within a minimum loss of time in view of the enormous distances involved in carrying forward the Pacific offensive. Two additional 14,000-ton yard floating docks are under construction and eight other drydocks and five new sections for Advance Base Sectional Docks have been authorized.

The Bureau of Yards and Docks also originated, early in the war, standard steel cells, or pontoons. These could be assembled in a few hours for use as barges, causeways, piers, floating drydocks, floating cranes and "rhino ferries." A novel use for one of the pontoons was in moving a large floating drydock on its side through the Panama Canal. Including 148,000 delivered in the first half of 1945, a total of 520,000 pontoons was constructed. As many as 45,000 pontoons were used on one landing operation.

NAVAL PERSONNEL

To boost the Navy's personnel to the 3,388,556 officers and men in service June 30, 1945, the Bureau of Personnel had to procure 3,700,000 officers and men to maintain its strength and expand despite attrition, an average of 14,200 a week during the five years. The wartime peak represented an increase of 3,200,000 after the Naval Expansion Act of 1940 became law.

The high point in procurement was reached during the fiscal year 1943-44 when the rate of 25,000 a week was adequate to man a Navy of 1940 strength every seven weeks.

The war brought new problems to the Bureau. New plans such as advance base and amphibious warfare programs required approximately 500,000 specially-trained officers and men. Changes in strategy caused unforeseen and often immediate revisions in scheduled requirements, but the personnel to man the ships and planes was available when required. To meet this task, Great Lakes, Sampson, Bainbridge, Farragut and Memphis were added to the major training centers at Norfolk, Newport, and San Diego.

When manpower had become critical and it became evident that many billets could be filled by women, legislation was enacted July 30, 1942, to admit women to officer and enlisted ranks. Three years later, more than 82,000 of these women were serving in the continental United States and at certain overseas bases.

Including the Navy, Coast Guard, and Marine Corps, personnel strength increased from 203,127 on July 1, 1940 to 4,036,457 on June 30, 1945. On June 30, 1943, the total was 2,207,720 and a year later the figure was 3,623,205, an increase of almost 1,500,000.

Officers and men in the regular Navy on June 30, 1945, totaled 378,263, and the reserves amounted to 3,010,293. Of the officers on that date, 48,226 were of the regular Navy and 269,090 were reserves.

The Navy's civilian employee rolls climbed from 124,498 on July 1, 1940, to 752,886 on June 30, 1945. The largest single group was composed of the 332,430 employed in navy yards. In this category there was a slight decline, as 346,943 were employed in navy yards on June 30, 1944.

UNITED STATES COAST GUARD

The United States Coast Guard, 155 years old and under the operational control of the Navy since Nov. 1, 1941 (until January, 1946), greatly expanded its normal peacetime functions and enlarged its operations to include naval duties especially suited to its personnel and facilities.

Personnel increased from 13,800 to 171,200, including 9,700 SPARS. Of the total, 97,900 were assigned to Coast Guard units, 66,600 to Navy units, and 6,700 to Army and Marine Corps units. Nearly 51 per cent of the male personnel was afloat.

To the 1,400 vessels on hand before the war were added 4,052 vessels. After decommissioning of more than 2,000, the service had 3,174 vessels, excluding pulling boats, as of July 1, 1945.

The Coast Guard played an important role in convoy and patrol work, manning of Army and Navy vessels, ice operations, port security, Merchant Marine inspection and discipline, aircraft patrol, and amphibious operations. Its men participated in every important landing operation and trained others in the handling of landing craft.

By executive order the Coast Guard, early in 1942, was assigned the protection of ports against fire, sabotage, or other wartime contingency. A related responsibility was the supervision of the handling of explosives and dangerous cargoes.

After Germany's defeat, a material relaxation took place in Port Security activity, which had entailed a maximum of 31,000 personnel ashore, 10,400 afloat, and 1,872 small craft. A unique use of some 50,000 volunteers serving as Temporary Reserves without pay featured this activity at its peak.

Coastal Picket activity, organized in 1942 to help cope with the submarine menace, involved 315 small craft manned by the Coast Guard. The Beach Patrol and Coastal Lookout to protect the coasts and prevent landing of saboteurs expanded the normal Coast Guard beach forces to approximately 23,500 men, 2,300 horses, and 2,000 dogs.

An Air-Sea Rescue Agency headed by the Commandant of the Coast Guard was established in 1944 at the request of the Joint Chiefs of Staff and by direction of the Secretary of the Navy. Plans called for the Coast Guard to man 139 vessels.

Operation of weather ships, loran, and radar beacons to guide planes and ships in war operations and the maintenance of 51 direction finder stations were among other duties.

The Coast Guard's 24 coastal radio communications stations were augmented by five leased commercial stations handling Allied merchant vessel messages, broadcasting weather and hydrographic reports, assisting in rescue operations, and handling authorized commercial business where other facilities were lacking.

Through these and other functions, the wartime Coast Guard augmented its peacetime capacity to save lives and—in its tradition as lineal descendant of the first naval organization under the American flag—assumed the duties of combat.

THE POST-WAR NAVY

The size of the post-war Navy was indicated by the House action on Oct. 30, 1945, when, by unanimous vote, it approved a Navy which would be larger than the fleets of all other nations combined. The concurrent resolution, which provides for 4,698,000 tons of warships in support of President Truman's declaration on Navy Day that the United States Navy will remain the greatest Navy on earth, was transferred to the Senate for final action.

The resolution stated that it is the "sense" of Congress that the Navy shall consist of 6,084 combatant and auxiliary vessels and 12,000 planes. The document specifies that the 1082 combat vessels will be divided as follows:

Types of Ships	Total Tonnage
3 Large aircraft carriers	135,000
24 Aircraft carriers	650,000
10 Light aircraft carriers	117,000
79 Escort aircraft carriers	725,000
18 Battleships	665,000
3 Large cruisers	82,500
31 Heavy cruisers	403,000
48 Light cruisers	450,000
367 Destroyers	760,000
300 Escort destroyers	387,000
199 Submarines	314,000

The bill is specific only as to the combatant ships, but provides that the auxiliary ships be available in approximate numbers. In the committee's report it is prescribed that there will be 5,002 auxiliaries of all types.

The plan reduces the fleet from the wartime total of 1,308 combatant ships. One-third of the post-war fleet would be fully manned and ready for any emergency, one-third would be held in reserve and ready for action on short notice, and one-third would be in a decommissioned status but available for recommission if needed. All the ships are either already in service or are being built under Congressional authorization.

The pre-war strength built and authorized, up to and including the Naval Expansion Act approved on May 17, 1938, was only 272 ships.

WAR PRODUCTION

By J. A. Krug

Former Chairman of the War Production Board

SCOPE OF PRODUCTION

In the five years of war production from July 1, 1940, through July 31, 1945, the industries of the United States turned out a total of $186,000,000,000 worth of planes, ships, guns, and other materiel against the Axis. This is the adjusted total, expressed in dollars of constant purchasing power. At no time during the struggle did war production absorb more than two-fifths of the national output; the remaining three-fifths represented production for civilians as great as the total in peacetime 1939. The war production figures for the five years are apportioned as follows: aircraft—some $44,442,000,000; ships, Naval and Maritime—$40,694,000,000; guns and fire control—$10,801,000,000; ammunition—$19,734,000,000; combat and motor vehicles—$21,529,000,000; communication and electronic equipment—$10,659,000,000; and other equipment and supplies—$38,148,000,000.

None of these figures includes expenditures on the production of atomic bombs and other secret weapons, which rose well above $2,000,000,000.

AVIATION PRODUCTION

Aviation production during the period represents a fleet of 297,000 military airplanes and special purpose aircraft, of which 97,000 were bombers, including super-fortresses, heavy four-engine, medium-range bombers, and those of the patrol, medium, and light bomber types; 99,000 fighters of all types; 3,700 reconnaissance planes; 24,000 military transport planes; 58,000 trainer planes; 14,000 communication planes; and 2,000 special purpose aircraft.

These aircraft totals represent a total airframe weight of nearly 2,500,000,000 pounds for all military airplanes and special-purpose aircraft produced. This excludes a considerable weight of spare parts, also produced in the period.

NAVAL SHIP PRODUCTION

New naval ships built during the period totaled 71,060 vessels, aggregating 8,250,000 displacement tons. This made the United States Naval fleet more powerful than the combined fleets of the rest of the world. Subsequent to July 1940, the fleet was increased by about 15 times on a tonnage basis. (See "Naval Construction and Equipment," p. 384 *seqq.*).

MARITIME COMMISSION PRODUCTION

Construction of Maritime Commission vessels during the five-year period quadrupled the United States merchant fleet—from 11,400,000 deadweight tons to about 45,000,000 tons. This increased the Maritime fleet from about one-sixth to one-half of the world's merchant tonnage, by the addition of 5,425 vessels totaling 53,200,000 deadweight tons. Of these, more than 600 vessels totalling 2,800,000 deadweight tons were military types constructed for the United States Navy; they included 50 baby aircraft carriers, 96 frigates, and scores of combat loaders, or attack cargo and attack transport vessels. (See "The Merchant Marine," p. 596 *seqq.*).

ARMY GUNS AND AMMUNITION

The Army procured 17,400,000 rifles, carbines, and sidearms; 2,700,000 machine guns; and more than 315,000 pieces of field artillery and mortars. Artillery ammunition exceeded 4,200,000 tons; mortar shells, 377,000 tons, while aircraft bombs, Army and Navy, weighed 5,900,000 tons. More than 41,000,000,000 rounds of ammunition were produced for small arms alone. Rockets for "bazookas" exceeded 15,200,000; land mines more than 24,000,000; grenades more than 110,000,000, and flame throwers well over 38,000. Defensive equipment for American soldiers included 23,000,000 helmets and 25,000,000 gas masks.

NAVAL ORDNANCE

In mid-1940, the guns installed on ships of the U. S. "one-ocean Navy" could fire a total of 411 tons of projectiles in 15 seconds. Five years later Navy firepower had increased more than tenfold to 4,500 tons per 15-second period. The naval ship construction program was provided with modern armament without delaying new ship completions; the armament of the naval fleet existing in 1940 was also modernized, and more than 6,050 merchant vessels were supplied with guns and ammunition. Naval gun ammunition and rockets amounting to 1,347,000 tons were produced.

COMBAT AND MOTOR VEHICLES

Combat and motor vehicles produced during the five-year period include tanks, 86,388; armored cars, 16,438; scout cars and carriers, 88,077; tank chassis for self-propelled guns, 16,018; trucks, 2,434,553, of which some 244,071 were "heavy-heavy," or over 2½ tons; 757,222 light-heavy, or of 2½ tons; 442,031 medium, or 1½ tons; and 991,229 light, or under 1½ tons (mostly jeeps); and tractors, 123,707.

COMMUNICATION AND ELECTRONIC EQUIPMENT

Communication and electronic equipment produced totaled some $10,659,000,000, of which $4,455,000,000 went for radio, $3,719,000,000 for radar, and $2,507,000,000 for other communication equipment, including some 5,262,000 miles of field and assault wire.

Electronics in military production amounted to only $155,000,000 in 1941. In 1944, almost 20 times that value was produced—$2,823,000,000. Radar was hardly out of the laboratory in 1941, but $3,700,000,000 of this equipment was produced over the five-year span from July 1940 to August 1945—about two-thirds of that being achieved in the last months of the period.

OTHER MILITARY EQUIPMENT

Other military equipment and supplies produced include the following: Clothing for the Army—service combat boots, 26,344,000 pairs; field jackets, 34,308,000; wool serge trousers (olive drab), 15,273,000; woolen socks, light or heavy, 251,043,000 pairs. The Army and Navy together procured 266,000,000 pairs of cotton shorts, equivalent to nine pairs for each adult male in the United States.

Equipage (Army); wool sleeping bags, 8,405,000; wool blankets, 43,270,000; squad tents, 754,000; half shelter tents, 24,609,000.

Medical supplies (Army); atabrine tablets, 4,715,620,000; sulfadiazine tablets, 1,412,506,000, and sodium penicillin (100,000 Oxford units) 11,835,000 ampules.

CONSTRUCTION AND FACILITIES

Excluding the $15,000,000,000 spent to equip the new plant, actual industrial construction in the five years from mid-1940 to mid-1945 accounted for less than $10,000,000,000 out of more than $40,000,000,000 of new construction. Direct military construction —camps, depots, barracks, air bases, and so on, ran above $10,000,000,000 or more than industrial facilities.

Despite high total construction in the early war years, this period revealed a substantial accumulation of construction demand. In many construction fields—highways, other public works, commercial buildings, and public utilities—for example, large numbers of projects had to be deferred because they could not demonstrate wartime essentiality. Much of the war housing, plant construction, military construction, and other building served only a temporary need and had to be abandoned when the fighting was over. Thus the beginnings of a new expansion in construction had become evident by the fourth quarter of 1945.

After VE-Day, a number of minor upward revisions of the dollar limitations in the construction order L-41 were made. The permitted value of work on residences and farmhouses was increased from $100 to $500; on commercial buildings to $5,000; and on industrial buildings to $25,000. Shortly thereafter all limitations on highway construction were removed. After VJ-Day, all dollar limits on industrial construction were eliminated, and the remaining restrictions in L-41 were revoked effective Oct. 15. At that time, tentative estimates projected a construction activity of $4,500,000,000 in 1945, rising to $6,500,000,000 in 1946. This last figure was revised upwards to $7,500,000,000 later in the year.

LEND-LEASE AND FOREIGN TRADE

In a little over four years, from March, 1941 to July, 1945, the United States had transferred under lend-lease goods valued at more than $37,000,000,000, besides rendering some $4,500,000,000 of service to the Allies. Shipments included almost $21,000,000,000 of industrial materials and products, and $6,000,000,000 of foods and other agricultural products.

The War Production Board was responsible for production for both domestic and export use, and the final determinations as to what could be produced for each were made in the WPB Requirements Committees. These determinations, however, were of necessity governed by the international policy of the country, and control was maintained with the assistance of the Foreign Economic Administration and predecessors, through preference ratings assigned within quotas to lend-lease requisitions and export licenses.

Beginning early in 1942, the Combined Raw Materials Board, the U. S. member of which was also a WPB representative, began to allocate between the United States and the United Kingdom, and among other allied nations, the world supply of critical raw materials available to those countries. To implement these allocations, the War Production Board issued its import control order M-63, which served also to regulate imports in respect of the available shipping space.

Under an early wartime authority, stocks were accumulated of such raw materials as manila fiber, block mica, quinine, tin, and rubber which prevented what might have been a disastrous shortage during the war. Stockpiling and public purchase programs under WPB directives covered more than 260 commodities, imported and domestic. With the end of the fighting, the total was reduced to about a dozen, chiefly involving subsidy payments and such scarce raw materials as cordage fibers, lead, natural rubber, tin, hides and skins. During the transition period, the War Production Board and its successor, the Civilian Production Administration, continued to assist urgent foreign procurement programs through expediting action. In special cases it provided priorities assistance in advance of procurement.

THE ATOMIC BOMB

The job of the War Production Board in the development of the atomic bomb was primarily to assist other programs, essential to maintaining the immediate flow of munitions to the battlefronts, whenever the overriding priorities of the Manhattan District Project (camouflage name of the atomic energy project) got in their way. Only occasionally was it called on to give the atomic bomb itself any assistance other than the blanket priority it had been granted. These conflicts with programs of immediate urgency were felt at one time or another in virtually all of WPB's industry divisions, when producers' order boards were disrupted and carefully timed program deadlines set back by the Manhattan District demands for materials and equipment in exceedingly tight supply.

It was the job of the WPB Special Rating Division to resolve these conflicts, a task made infinitely harder by the secrecy surrounding the atomic bomb operations. Only a handful of men in the WPB knew what the project sought to accomplish; no one could talk about its operations while they defended its extreme urgency.

Many other WPB divisions aided the completion of the project. In virtually all scheduling, programming, and allocation of materials components and end products, Manhattan was given 100 per cent of its stated requirements. Uranium supplies and uses were carefully controlled by the Miscellaneous Minerals Division through M-285 and through allocation of all imported uranium. The Urgency Rating Committee gave it top priority from the start, and it appeared at the head of every issue of the National Production Urgency List, which determined priority in local labor referrals. In total, these measures speeded by months the brilliant success of the first atomic bombing of Japan and thus helped bring the war to an earlier conclusion.

ELECTRIC POWER

Paced by such insatiable new consumers of electric energy as the atomic bomb plants, aluminum, magnesium, synthetic rubber, and the cross-country pipe lines, demands for electric power jumped from 161,300,000,000 kilowatt hours in 1939 to 279,500,000,000 kwh in 1944, an increase of 73 per cent. In the same period, generating capacity of the nation's power plants was allowed to increase by only 26 per cent—from 49,400,000 to 62,000,000 kilowatts.

At no time during the war was it necessary to curtail power consumption because of insufficient supply. The United States ended the war with lights burning, with every machine fully powered, and with electric energy to spare, yet the power companies, relieved of their tremendous war burden, were then planning to spend $1,500,000,000 in the following 18 months for construction and equipment needed to carry the reduced peacetime load.

The wartime feat was made possible by a pooling arrangement. Under WPB direction, the power industry virtually realigned its historical pattern of production and distribution. All the nation's power systems—private, municipal, county, state, and Federal—were, in effect, assembled in great operating pools. Normal competitive development was halted. When it best served the effort, some operators had to turn the job of supplying power to customers in their service areas over to competing firms, while their own plants shoved across state lines to distant war plants. This integration was accomplished under Limitation Order L-94, adopted in September 1943. For example, all the power systems in Tennessee, Alabama, Georgia, Florida, North Carolina, South Carolina, and Kentucky were tied together and operated as a single network. This network, through an inter-tie at Memphis, was linked with the great power pool in the Southwest, embracing the utilities of Oklahoma, Kansas, Arkansas, Texas, and Louisiana. Similar integrated pools were established in the Pacific Southwest, Pacific Northwest, Middle West, New England, and the Middle Atlantic States.

Four days after VE-Day, the Office of War Utilities of WPB paved the way for a start on the large dammed-up program for rehabilitation and expansion of power plants and transmission systems. The power companies made it clear at that time that when construction was entirely open-ended, they planned to continue expanding at the rate of $1,200,000,000 a year. Order L-94 was revoked in August, but OWU urged power companies in areas of short supply to continue their pool interchanges at least until new equipment could be completed and placed in operation. The surrender of Japan brought a sharp decline in power demands. By the end of September the weekly rate of power output had dropped by 300,000,000 kilowatt hours. However, the downward trend was expected to reverse itself during 1946, and the utility companies anticipated that power demands in 1947 would be even heavier than those made during the war years.

STEEL

The military cutbacks announced just before and just after VE-Day opened a prospect of an easier position in supply and requirements of steel. A start was made toward lifting end-use restrictions. Controlled Materials Plan authorizations were provided for essential programs only. Limitations and conservation orders had been relaxed, and new non-military consumption could be supplied by whatever "open-end" steel might be available after taking care of CMP orders.

Meanwhile the carry-over of past-due orders of sheet and strip had risen dangerously. The mills were plagued by manpower shortages. Such reduced requirements as developed in some military programs were offset by mounting Pacific war requirements in others. The bulk of increases authorized for essential civilian programs centered in farm machinery, trucks, freight cars, refrigerators, washing machines, which required much sheet steel.

Intensive efforts were at once directed toward clearing space on sheet and strip mill schedules, but with the advent of VJ-Day, military programs were so drastically cut back that the crisis was quickly ended. CMP was terminated at the end of the third quarter. Inventory restrictions were retained in order to forestall hoarding, and a few limitation orders were kept for special purposes. Finally, a simplified priorities system with two ratings was instituted, the first to protect military orders of high urgency and the second to break reconversion bottlenecks; otherwise, steel was completely free of wartime control. For 1946, finished steel demand was estimated to be in the neighborhood of 58,600,000 tons, or some 2,600,000 tons below estimated first-line production capacity, excluding high-cost capacity.

COPPER AND COPPER ALLOY PRODUCTS

As the copper supply became easier, controls were gradually relaxed during 1945 until May, when the order prohibiting its use in non-essential civilian items was revoked. After July 1, CMP was "open-ended," and copper became available for unrated orders. With the termination of the Controlled Materials Plan, all restrictions on the use of copper and its alloys were removed.

Expansion of the wire mill industry had been necessitated by the Navy and Maritime shipbuilding programs. As late as January, 1944, requirements for communication wire were running at less than 90,000 miles a month, but with the approach of the Normandy invasion, requirements jumped sharply and reached a peak of 270,000 miles by May, 1945. This program required erection of a $5,000,000 plant at St. Louis and the installation of several hundred seven-wire stranding machines which were of little value in post-war civilian production. Special facilities also had to be acquired for production of Navy shipboard cable, which has virtually no commercial use. However, a number of other expansions, chiefly those required for the use of synthetic rubber and plastics to replace natural rubber in cable coverings, were of permanent use.

During the war years, foundry capacity as a whole was sufficient to meet the demands placed upon it, although production had to be increased from a pre-war average of 250,000 tons to 786,000 tons in 1944. New facilities costing nearly $10,000,000 were built, largely to cope with specialized orders and to meet transportation and manpower problems. The 1945 capacity of the industry exceeded probable post-war requirements for foundry products.

ALUMINUM

The war history of aluminum is the record of a successful race to expand facilities fast enough to meet the multiple increases in military requirements, chiefly for aircraft. At the end of the war, with all controls lifted, the industry was faced with surplus capacity, surplus stocks, and surplus scrap. In 1938, the annual capacity of the single United States producer of primary aluminum was 300,000,000 pounds. The total fabricating facilities in the country were barely able to process the available metal. When the wartime expansion program was completed, installed ingot capacity was 2,300,000,000 pounds per year; secondary recovery had increased sixfold; and the fabricating system had an annual machine capacity of 2,600,000,000 pounds. As a result of this huge expansion, both private and government financed, approximately 42 per cent of the world's total installed primary capacity is now concentrated in the United States, and the domestic fabricating system is by far the largest in the world. By even the most optimistic estimates of postwar demand, 50 per cent of United States capacity is surplus for commercial operations, and the potential effects on the world industry resulting from ultimate disposition of government-owned facilities are far-reaching.

RECONVERSION

Reports for the four months through July, 1945, from a large number of capital goods producers, showed that shipments to civilian users were above 1939 rates in such lines as mechanical power transmission equipment, machine tools, metal working machinery, food products machinery, pumping equipment and air compressors, and mining machinery and equipment, by margins ranging from 10 per cent and more. Industries in this position had only sales volume and prices, not production problems, to worry them in the reconversion period.

For the capital equipment group as a whole, it was estimated that production of civilian-type products dropped about 10 per cent in August as military orders were cancelled. Civilian orders, however, had already begun to take up the slack, and the industry's own expectation based on a sample survey, was that it would be operating at 234 per cent by mid-1946.

A survey of a large representative group of manufacturers in 14 of the principal metal consumer goods manufacturing industries—passenger autos, stoves, refrigerators, watches, vacuum cleaners, washing and ironing machines, sewing machines, bicycles, and so on—was made in September 1945, to determine the manufacturers' own expectations of their rate of reconversion. With one exception, these industries indicated that by June, 1946, every one of the 14 expected to be producing more goods than before the war, beginning to satisfy the accumulated demand of the war years. In a few industries—domestic water heaters, watches, washing and ironing machines, electric ranges, oil burners, and electric fans—the companies surveyed foresaw markets more than double those of pre-war years.

The survey revealed two other striking facts. First, in a number of these industries, the smaller firms were counting on increasing their share of the market; they predicted substantially larger percentage increases than the big companies. Many of these smaller companies had greatly expanded and modernized their productive capacity as a result of large war contracts; they expected to make aggressive use of these new facilities in a period when old brand preferences might be latent or forgotten. Second, each of these industries expected a higher output per employee than before the war.

CIVILIAN PRODUCTION ADMINISTRATION

With disbandment of the War Production Board on Nov. 3, 1945, the newly appointed Civilian Production Administration took over the remaining functions, powers, duties, and personnel of the WPB, with John D. Small as Administrator. The new organization retained a hard central core of the older body, with the understanding that the other men of WPB would stand ready to return at short notice to meet any emergency which might arise during the difficult task of reconversion.

Five operating bureaus, namely, of Reconversion Operations, Priorities, International Supply, Field Operations and Demobilization, assumed the following functions for the period of orderly transition from wartime industrial production to maximum peacetime production free from war controls, and with due regard for the stabilization of prices and costs: 1. Use of authorized powers to expand production of materials which were in short supply; 2. Limiting the use of materials which were still scarce; 3. Restricting the accumulation of inventories so as to avoid speculation, hoarding, and unbalanced distribution which would curtail total production; 4. Granting priorities assistance to break "bottlenecks" which threatened to impede the reconversion process; 5. Facilitating the fulfillment of relief and other essential export programs; 6. Allocation of scarce materials or facilities necessary for the production of low-priced items, such as the low-cost clothing program, essential to the continued success of the stabilization program; and 7. Implementation of the President's moderate-cost housing program, with veterans' preference in occupancy.

ADMINISTRATION OF VETERANS AFFAIRS

BY OMAR N. BRADLEY

GENERAL, U. S. A.; ADMINISTRATOR, VETERANS ADMINISTRATION

ORGANIZATION

As of June 30, 1945, the organization of the Veterans Administration consisted of the following officers: Frank T. Hines, Administrator of Veterans Affairs; Adelbert D. Hiller, Executive Assistant to the Administrator; Harold W. Breining, Assistant Administrator in charge of finance and insurance; Omer W. Clark, Assistant Administrator in charge of compensation, pension, vocational rehabilitation and education; George E. Ijams, Assistant Administrator in charge of medical and domiciliary care, construction and supplies; Edward E. Odom, Solicitor in charge of legal activities; and Robert L. Jarnigan, Chairman of the Board of Veterans' Appeals. On June 7, 1945, President Truman appointed Gen. Omar N. Bradley to succeed Gen. Hines as Administrator of Veterans Affairs, and Gen. Bradley assumed that post on Aug. 15, 1945.

INSURANCE

The United States Government life insurance fund is a trust fund administered by the Government as trustee for the sole benefit of the policyholders. The Government derives no profit whatever from the administration of this fund as it may be used only for the payment of claims under United States Government life insurance contracts and as dividends to the policyholders themselves. All premiums paid by the policyholders, all interest received from policy loans, investments, etc., are covered into this fund in the United States Treasury.

At the close of the fiscal year 1945 there were in force 567,934 United States Government life (converted) insurance policies amounting to $2,454,855,781 insurance. During this fiscal year 439 policies amounting to $1,600,792 insurance were reinstated. Monthly payments, averaging $35.10 were being paid to 10,841 permanently and totally disabled veterans. During the fiscal year ended June 30, 1945, there were approved 2,743 applications aggregating $16,857,362. The actual disbursements made from this fund during the fiscal year 1945 totaled $32,273,258.28.

Yearly renewable term insurance was granted to all veterans of the First World War who made application for this form of benefit within 120 days after induction into service. The amount of term insurance was limited to $10,000 for each veteran. Monthly payments on term insurance policies are based on $5.75 per $1,000 of insurance in force at such time as award for disability or death is made. As of June 30, 1945, monthly payments were being made to 9,301 permanently and totally disabled veterans and to the beneficiaries of 2,042 deceased veterans.

Automatic insurance was granted to those veterans of the First World War who were disabled or to the beneficiaries of those who died within 120 days after being inducted into service and before application for term insurance was made. The amount of automatic insurance was limited to $5,000. As of June 30, 1945, monthly payments were being made to 215 permanently and totally disabled veterans and to the beneficiaries of 11 deceased veterans. These payments are fixed by law at $25 per month.

The disbursements for term and automatic insurance during the fiscal year 1945 totaled $19,756,071.97, including $12,941,477.28 transferred to the United States Government life insurance trust fund for cases traceable to extra hazards of military or naval service, making a net disbursement of $6,814,594.69.

The National Service Life Insurance Act, approved Oct. 8, 1940, authorized the issue of a new type of insurance to certain persons then in the active service of land and naval forces (including Coast Guard) and those thereafter entering on active duty, including persons inducted under the Selective Training and Service Act of 1940. The insurance was available to those persons then on active duty, and if in good health, upon application made within 120 days from the date of the approval of the act. As to those who entered service after that date, application must be made within 120 days from date of entry into service. This insurance is limited to $10,000 for each veteran and is payable only in the event of death of the insured while the policy is in force. During the fiscal year 1945 there were approved 2,206,813 applications aggregating $20,398,204,000 of insurance. The total number of applications, approved to June 30, 1945, was 17,492,388 amounting to $135,021,405,000 of insurance. Benefits had been awarded on June 30, 1945 in 223,626 cases on insurance valued at $2,039,255,100. The average contract insurance in force at the time of the veteran's death was $9,191.42. Widows were the sole beneficiary in 22 per cent and parents in 68 per cent of the awarded cases.

Commercial Insurance Guarantee.—An act to promote and strengthen the national defense by suspending enforcement of certain civil liabilities of certain persons serving in the military and naval establishments, including the Coast Guard, was approved Oct. 17, 1940. Article V of the act provides that the Government will, on application of the insured, guarantee to commercial insurance companies premiums on insurance carried with such companies by persons in active service. Through June 30, 1945, 103,227 applications for insurance benefits under this act had been received, of which 87,037, representing $216,993,141.30 insurance, had been approved, and 14,793, representing $34,090,135.15, had been disapproved.

GUARDIANSHIP

The Veterans Administration maintains supervision of all guardianship activities for incompetent veterans and minor beneficiaries. An effort has been made to utilize so far as possible the services of relatives as guardians of the person and the services of banks and trust companies as guardians of the estate of wards. As of June 30, 1945, the total guardianship load was 87,346 wards of whom 45,097 were incompetents and 42,249 minors. The value of estates of all wards approximated $163,158,552.78 on June 30, 1945.

PENSIONS AND COMPENSATION

Yellow Fever Experiments.—An act approved Feb. 28, 1929, recognized the high public service rendered by Major Walter Reed and those associated with him in the discovery of the cause and means of transmission of yellow fever. This act, in addition to establishing a roll of honor, granting medals, etc., authorized a monthly payment of $125 to each of 17 designated persons during the remainder of their lives. As of June 30, 1945, six persons were receiving this benefit. The disbursements for this type of benefit during the fiscal year totaled $9,375.

Revolutionary War.—The last pensioner was Daniel F. Bakeman who died at Freedom, New York, April 5, 1869, at the age of 109 years. The last widow of a veteran to receive pension was Esther S. Damon of Plymouth County, Vermont, who died Nov. 11, 1906, at the age of 92 years.

War of 1812.—Hiram Cronk the last veteran pensioner died May 13, 1905, at Ava, New York, at the age of 105 years. The last widow of a veteran to receive pension was Caroline King of Cheektowaga, New York, who died June 28, 1938, at the age of 89 years. As of June 30, 1945, the sole remaining pensioner was Esther Ann Hill Morgan, of Independence, Oregon, a dependent daughter of John Hill, deceased, private, Clark's and McCumber's Companies, New York Militia. Mrs. Morgan was born March 9, 1857, and receives $20 a month by special act of Congress.

Mexican War.—This war ended May 30, 1848. The last veteran pensioner was Owen Thomas Edgar, an apprentice on board the *U.S.S. Potomac, Experiment, Pennsylvania,* and *Alleghany,* U. S. Navy, who died Sept. 3, 1929, at Washington, D. C., age 98 years. On June 30, 1945, pensions were being paid to 54 widows and one child of veterans of this war. Disbursements made during the fiscal year 1945 totaled $31,129.24.

Indian Wars.—On June 30, 1945, pensions were being paid to 1,115 veterans. The average age of these veterans was 82 years. Disbursements during this fiscal year totaled $955,573.20. As of June 30, 1945, pensions were being paid to the dependents of 2,673 deceased veterans. The number of dependents totaled 2,709, classified as follows: widows, 2,647; children, 52; and others, 10. Disbursements during the fiscal year 1945 totaled $1,305,867.10.

Civil War.—Out of a total of 2,213,365 who served in the Union forces in the Civil War which terminated 80 years ago, pensions were being paid to 229 veterans on June 30, 1945. The average age for this group was 98 years. Disbursements during this fiscal year totaled $328,846.77. On June 30, 1945, pensions were being paid to dependents of 24,521 deceased veterans. The dependents totaled 24,681 and were classified as follows: 22,900 widows and remarried widows, and 1,781 children. Of the 24,521 cases, there were 3,236 cases in which the monthly payment was $30; 18,184 cases in which the beneficiary received $40 per month as provided by law for widows of the attained age of 70 years, and 217 in which $50 per month was being paid to widows who were the wives of veterans during their service in this war. There were 2,151 cases in which dependents were in receipt of pensions under Special Acts of Congress, and 733 in which the dependents were being paid pensions under general laws because of the death of the veteran from causes owing to military service, Disbursements during the fiscal year 1945 totaled $11,544,251.06.

Spanish American War.—On June 30, 1945, pensions were being paid to 128,104 veterans. Of this number 127,203 were receiving pensions for disabilities of nonservice origin or for age, 840 for service-connected disabilities, and 61 were special act cases. A study of the age of these pensioners shows that 89 per cent are between the ages of 60 and 75 years as of the above date. Disbursements during the fiscal period amounted to $111,313,837.15. As of June 30, 1945, pensions were being paid to the dependents of 71,955 deceased veterans. The number of dependents totaled 76,213 classified as follows: 70,526 widows, 5,520 children, 162 parents, and five others. During the fiscal year 1945 the amount paid to these dependents totaled $31,483,634.89.

Regular Establishment. — As of June 30, 1945, the number of veterans receiving pensions as a result of disabilities incurred in service in time of peace totaled 42,925. The disbursements for this group during this period totaled $18,737,740.79. On June 30, 1945, pensions were being paid to the dependents of 13,666 deceased veterans whose death was determined to be the result of disease or injury originating in line of duty in the military or naval service in time of peace. The number of dependents receiving pensions as of June 30, 1945, totaled 20,046, consisting of 6,479 widows, 5,470 children, 8,087 parents, and 10 others. Disbursements during the fiscal year 1945 totaled $6,162,021.55.

First World War.—*Veterans, service-connected.*—During the fiscal year 1945, the number of veterans receiving compensation for disabilities directly or presumptively connected with service totaled 332,628. An analysis of the major disabilities for which this compensation is being paid discloses that neuropsychiatric diseases are the disabling cause in 19.6 per cent of the awards, tuberculosis in 15.3 per cent, and general medical and surgical conditions in 65.1 per cent. During the fiscal year 1945, the amount of $180,349,901.86 was paid to veterans with service-connected disabilities.

Veterans, Nonservice-connected.—As of June 30, 1945, pensions were being paid to 90,477 totally disabled veterans whose disabilities were not of service origin. Of the veterans on the roll 37 per cent were over 55 years of age. Disbursements during the fiscal year 1945 totaled $53,061,553.55.

Emergency, Provisional, Probationary, or Temporary Officers.—As of June 30, 1945, there were 2,550 officers entitled to retirement pay, of whom 2,453 were receiving full pay and 31 partial pay. In the remaining 66 cases, there was a complete forfeiture of retirement pay owing largely to the fact that the officer was employed by the government at a salary in excess of $3,000 per annum. Disbursements during the fiscal year 1945 totaled $4,084,049.12. Of the 2,550 officers entitled to retirement pay 2,466 served in the Army, 68 in the Navy, and 16 in the Marine Corps.

Deceased veterans, service-connected.—On June 30, 1945, compensation was being paid to the dependents of 84,416 veterans who died in service or as a result of diseases or injuries incurred in service. These dependents totaled 108,184 and were classified as follows: 30,560 widows, 16,012 children, and 61,612 parents. Disbursements during the fiscal year 1945 totaled $50,019,402.78.

Deceased veterans, nonservice-connected.—An act approved June 28, 1934, as amended July 19, 1939, authorized the payment of compensation to the widows and children of deceased veterans who at the time of death were suffering from a disability of service origin but who died as a result of a disability not incurred in service. On Dec. 14, 1944, this act was further amended to authorize the payment of pension if the veteran was discharged or released from service under conditions other than dishonorable after having served 90 days or more or for disability incurred in line of duty, or if the veteran was at the time of death, receiving or entitled to receive compensation, pension, or retirement pay for a service-connected disability. On June 30, 1945, payments were being made on 77,584 deceased veterans' cases, involving 73,263 widows and 75,094 children. Disbursements during the fiscal year 1945 totaled $24,729,415.

Second World War.—*Living veterans, service-connected.*—On June 30, 1945, compensation was being paid to 536,541 veterans for disabilities incurred in line of duty. The average age of these veterans was 29 with the greatest incidence of disability at age 24. Disbursements to this group during the fiscal year totaled $167,975,339.72. In addition, $7,046,348.66 was received by this group during this year for increased pension payments because of vocational training.

Living veterans, nonservice-connected.—On June 30, 1945, pensions were being paid to 543 totally disabled veterans, whose disabilities have been determined to be not caused by their military service. The average age of these veterans was 34 with the greatest incidence of disability at age 24. Disbursements to this group during the fiscal year totaled $152,846.87.

Deceased veterans, service-connected.—On June 30, 1945, pensions were being paid to the dependents of 94,463 veterans who died as the result of disease or injury originating in line of duty. These dependents received a total of $60,058,586.30 during the fiscal year 1945.

Deceased veterans, nonservice-connected.—The acts of May 27, 1944, and Dec. 14, 1944, extended to widows and children of deceased Second World War veterans the benefits provided by the act of June 28, 1934, as amended, based on First World War service, except that in Second World War cases, pension is payable only if

War	On Roll June 30, 1945	Disbursements Fiscal Year 1945
Yellow Fever Experiments Participants	6	$ 9,375.00
War of 1812		
Deceased veteran	1	240.00
Mexican War		
Deceased veterans	55	31,129.24
Indian Wars—total	3,788	2,261,440.30
Living veterans	1,115	955,573.20
Deceased veterans	2,673	1,305,867.10
Civil War—total	24,750	11,873,097.83
Living veterans	229	328,846.77
Deceased veterans	24,521	11,544,251.06
Spanish American War—total	200,059	142,797,472.04
Living veterans	128,104	111,313,837.15
Deceased veterans	71,955	31,483,634.89
Regular Establishment—total	56,591	24,899,762.34
Living veterans	42,925	18,737,740.79
Deceased veterans	13,666	6,162,021.55
First World War—total	587,655	312,244,322.31
Living veterans	425,655	237,495,504.53
Service connected	332,628	180,349,901.86
Nonservice connected	90,477	53,061,553.55
Emergency Officers, etc.	2,550	4,084,049.12
Deceased veterans	162,000	74,748,817.78
Service connected	84,416	50,019,402.78
Nonservice connected	77,584	24,729,415.00
Second World War—total	631,711	235,299,540.21
Living veterans	537,084	175,174,535.25
Service connected	536,541	175,021,688.38
Nonservice connected	543	152,846.87
Deceased veterans	94,627	60,125,004.96
Service connected	94,463	60,058,586.30
Nonservice connected	164	66,418.66
Retired Officers, Army of the United States (except regulars) Living veterans	9,042	10,174,646.32
Grand total—pensions and compensation	1,513,658	739,591,025.59
Living veterans	1,144,154	554,180,684.01
Deceased veterans	369,498	185,400,966.58
Yellow Fever Participants	6	9,375.00

the veteran had a service-connected disability at the time of his death for which pension would be payable if 10 per cent or more in degree. On June 30, 1945, payments were being made on 164 cases involving 153 widows and 166 children. Disbursements to these dependents during this fiscal year amounted to $66,418.66.

Retired Officers of the Army of the United States (except regulars).—On June 30, 1945, there were 9,097 reserve officers entitled to retirement pay for service-connected disabilities as provided under Public 18, 76th Congress, approved April 3, 1939, and Public 262, 77th Congress, approved Sept. 26, 1941. In 55 cases retirement pay had been forfeited. Disbursements during the fiscal period totaled $10,174,646.32. The average age of the 9,097 officers was 36 years and 9,061 of the total had service in the Second World War.

Grand Total—Pensions and Compensation. — The preceding table shows the number on the rolls as of June 30, 1945, and the net disbursements during the fiscal year 1945 from the appropriation "Army and Navy Pensions."

VOCATIONAL REHABILITATION AND EDUCATION

During the year ended June 30, 1945, an expanding program was carried on under the provisions of Public Law 16, 78th Congress, approved March 24, 1943, for eligible disabled veterans with handicaps removable by training; also the first year of a program of education and training under the provisions of Part II, Public Law 346, 78th Congress, approved June 22, 1944, for eligible nondisabled veterans in need of educational or occupational readjustment. As of June 30, 1945, 22,232 veterans had entered into training under Public 16. Of these, 14,986 were still in training, 5,013 had interrupted training, 1,469 had discontinued training, and 764 had been rehabilitated. Under Title II, Public Law 346, 22,335 veterans were in training on June 30, 1945, and 990 veterans had completed courses of education or training.

HOSPITALIZATION

On June 30, 1945, the Veterans Administration was operating hospital facilities at 97 locations in 45 states and the District of Columbia. The total number of beds in these facilities was 95,211, of which 81,133 were for hospital treatment and 14,078 for domiciliary care. In addition, 5,438 hospital beds in other government hospitals were being utilized.

On June 30, 1945, the hospital load was 71,439 patients. Of this number, 71,229 were United States veterans, classified by service as follows: First World War, 44,788; Second World War, 20,774; Spanish American War, 2,793; Civil War, 8; all other wars, expeditions, and occupations, 41; Regular Establishment, 2,825. Other hospital patients included 47 allied veterans of the First World War and 163 miscellaneous beneficiaries. Of the 71,229 United States veterans, 47,892 or 67.24 per cent were receiving treatment for disabilities not of service origin. There were 66,818 United States veterans in facilities controlled by the Veterans Administration, 2,958 in other government hospitals, and 1,453 in state or civil institutions. Of the patients in hospitals June 30, 1945, 62.54 per cent were receiving treatment for neuropsychiatric diseases, 27.95 per cent for general medical and surgical conditions and 9.51 per cent for tuberculosis. Admissions during the fiscal year 1945 included 241,013 United States veterans, 2,981 admissions of other patients, 130 allied veterans, 1,939 persons in active military or naval service, and 912 miscellaneous beneficiaries. Of the 241,013 United States veterans, admissions were authorized for 13,979 for observation and treatment of pulmonary tuberculosis, 25,492 for psychotic or mental diseases, 19,973 for other neurological disorders, and 181,569 for general medical and surgical conditions.

During the fiscal year 1945, there were 306,251 United States veterans under hospitalization. Of this number, 235,022 were discharged after an average of 73 in-patient days. Patients who remained until the completion of treatment numbered 190,217 or 80.94 per cent of the total discharges.

Deaths in hospitals during the fiscal year totaled 15,488 of which 71.99 per cent occurred among patients under treatment for general conditions; 14.98 per cent for tuberculosis; and 13.03 per cent for neuropsychiatric diseases.

DOMICILIARY CARE

At the close of the fiscal year 1945 the veteran population present in domiciliary status in facilities under the control of the Veterans Administration totaled 8,779. The percentage distribution of the above veteran patients by wars were: First World War, 86.43; Spanish American War, 6.71; Second World War, 4.10; peacetime service in the Regular Establishment, 2.56; other wars, expeditions, and occupations, 0.20. An analysis of the causes of disability of these veterans shows 5,520 to be general medical and surgical conditions, 3,133 neuropsychiatric diseases, and 126 tubercular ailments.

During the fiscal year 1945,, there were 10,719 veterans admitted for domiciliary care. Of this number 8,240 or approximately 77 per cent, had served in the First World War; 1,473 or 14 per cent, Second World War; and 739, or approximately 7 per cent, Spanish American War. Approximately 90 per cent of the admissions were for nonservice-connected disabilities. Of the veterans admitted to domiciliary care during this period 68 per cent were disabled by general medical and surgical conditions, 31 per cent by neuropsychiatric diseases, and 1 per cent by tuberculosis.

During the fiscal year 1945, 15,586 veterans were discharged after an average of 6½ months' domiciliary care. Deaths among domiciled veterans during this period totaled 83, the principal causes of which were diseases of coronary arteries and angina pectoris, diseases of the myocardium and syphilis, which collectively were responsible for 63 per cent of the deaths.

The Federal Government is required to reimburse state or territorial homes for disabled soldiers in an amount not to exceed $300 per year for each person domiciled therein who is eligible for similar care in facilities controlled by the Veterans Administration. During the fiscal year 1945, an average of 4,159 such persons were cared for in these homes, thereby creating an obligation of over $1,194,353 on the part of the Federal Government.

DENTAL CARE

During the fiscal year 1945, dental care was provided for 35,111 hospital patients, 4,725 domiciliary members, and 6,371 out-patients in clinics maintained by the Veterans Administration, at an actual cost of $1,323,796. During this fiscal period, 30,402 new dentures were made and 5,429 repaired in dental clinics of the Veterans Administration. Dental treatment was authorized to private practitioners for 2,354 veterans, at a cost of $112,245, during the same period.

OUT-PATIENT EXAMINATIONS AND TREATMENTS

During the fiscal year 1945, there were 1,771,760 physical examinations for out-patient purposes made in field facilities. Of these examinations, 98.5 per cent were medical and 1.5 per cent were dental. Treatments furnished during the year for out-patient purposes totaled 828,620 of which 91 per cent were medical and 9 per cent dental.

FINANCE

The actual net disbursements from appropriations and trust funds of the Veterans Administration (including adjustments on lapsed appropriations) during the fiscal year 1945 were as follows:

ADMINISTRATION OF VETERANS AFFAIRS

Appropriations	Disbursements
Salaries and expenses	$ 158,824,748.47
Printing and binding	553,756.46
Hospital and domiciliary facilities and services, Veterans Administration	15,800,635.66
Army and Navy pensions and military and naval compensation	771,796,516.61
Military and naval insurance	19,756,071.97
National service life insurance appropriated fund	1,117,548,383.54[1]
Adjusted service and dependent pay	63,909.11
Vocational rehabilitation (First World War)	363.94[2]
Military and naval family allowance	2,346.96[2]
Vocational rehabilitation revolving fund (Second World War)	99,978.51
Soldiers' and sailors' civil relief, Veterans Administration (Second World War)	27,877.90
Penalty mail costs, Veterans Administration	180,516.30
Miscellaneous	18,066.40
Trust funds:	
U. S. Government life insurance	32,273,258.28
National service life insurance	136,846,767.35
Adjusted service certificate fund	11,223,396.84
General Post fund	96,462.50
General post fund auxiliary account, Veterans Administration	270,931.49
Funds due incompetent beneficiaries	185,223.06
Personal funds of patients, Veterans Administration	5,754,543.87
Total	$2,271,318,333.42

[1] Represents net amount transferred by voucher to National Service life insurance for payment of claims traceable to the extra hazards of military or naval service.

[2] Credit—the amount shown for the appropriation "Salaries and Expenses" includes net disbursements of $27,036.39 from allotments made to other Government agencies.

LOAN GUARANTEE ACTIVITIES

Title III of the Servicemen's Readjustment Act provided for the guarantee of loans for the purchase or construction of homes, farms, business property for any person who shall have served in the active military or naval service of the United States at any time on or after Sept. 16, 1940, and prior to the termination of the Second World War and who shall have been discharged or released therefrom under conditions other than dishonorable after active service of 90 days or more, or by reason of an injury of disability incurred in service in line of duty. As of June 30, 1945, the total applications received for guarantee of loans was 15,455. Of this number, 12,228 were guaranteed for a total of $19,644,824.90, distributed by types as follows: home loans, 11,220; farm loans, 270; and business loans, 738.

READJUSTMENT ALLOWANCES

Operations under Title V of the Servicemen's Readjustment Act, providing assistance to both unemployed veterans and those in self-employment, were begun on a nationwide basis on Sept. 4, 1944. As authorized by the act, the Veterans Administration entered into agreements with the various state unemployment compensation agencies to assume the functions of taking, processing, adjustment, and determination of readjustment allowances, and payment of allowances relating to unemployment. An unemployed veteran who has met the basic entitlement requirements is eligible for allowances providing he files a claim, registers for work, and is able to work and available for suitable work. A veteran in self-employment for profit in an independent establishment, business, trade, profession, or other vocation who has met the basic entitlement requirement is eligible for allowance providing he has been fully engaged in such employment and his net earnings have been less than $100 in the previous calendar month. A total of 180,798 veterans filed applications for determination of entitlement for allowances; 159,886 veterans submitted claims for unemployment allowances; and 15,221 filed claims for self-employment allowances. Disbursements for the fiscal year 1945 totaled $23,512,150, of which $20,123,525 represented payments to unemployed veterans and $3,388,625 payments to self-employed veterans.

IX. DEFENSE AND ARMAMENT

WATERWAYS AND HARBORS

By R. A. Wheeler
Lieutenant General, U. S. A.; Chief of Engineers, War Department

RIVER AND HARBOR IMPROVEMENTS

Federal improvement and maintenance of rivers and harbors and other waterway channels of the United States and its territories and island possessions have been prosecuted for some 120 years under the direction of the Secretary of War and supervision of the Chief of Engineers, U. S. Army, in accordance with the authorizations of Congress. In conformity with the national policy limiting wartime construction in order to conserve manpower, equipment, and materials, the new work program for rivers and harbors was restricted to improvements having direct importance to the war effort. During the fiscal year ended June 30, 1945, improvement and maintenance work was performed on 16 regular navigation projects and maintenance work was carried out on 280 projects, including the numerous coastal ports, the harbors and connecting channels on the Great Lakes, and the extensive Intracoastal Waterway and Mississippi River network, together with the operation and care of the canalized Ohio River system, Illinois Waterway, and upper Mississippi River. The Federal expenditures for new work and maintenance operations on navigation projects during the fiscal year ended June 30, 1945, were $57,145,900.96.

The principal items of new work performed during the fiscal year, other than on canals and inland waterways, included the completion of dredging the Liberty Island and Red Hook Flats anchorages, New York Harbor, to project depths of 20 feet over an area of about 160 acres, and 40 and 30 feet over an area of approximately 440 acres. Enlargement of channel facilities of New York and New Jersey channels in Arthur Kill at the bend opposite Sewaren, New Jersey, was accomplished. Ledge rock was removed to a depth of 41 feet in the west half of the channel on the Marcus Hook, Chester, Eddystone, and Tinicum ranges in the Delaware River, and dredging and rock excavation was accomplished in the Withlacoochee River, Florida, to provide a navigation channel 10 feet deep from the mouth to Port Inglis, Florida. Dredging was undertaken to provide a settling basin at the mouth of the Los Angeles River diversion channel at Los Angeles and Long Beach harbors, California.

In addition to the new work outlined in the preceding paragraph, maintenance operations were performed at important river and harbor and other waterway projects previously completed along the Atlantic, Gulf, and Pacific coasts, in the interior, and on the Great Lakes. Work was also performed on 14 projects of a river and harbor nature required in connection with the war effort by the Navy Department and other government agencies.

The 35,000 kw generating unit at the Fort Peck Dam in Montana was in operation during the major portion of the year, the amount of power generated during the year being 84,334,630 kwh. Water stored in the reservoir created by the Fort Peck Dam was released to augment the natural stream flow during low water periods to provide for navigation. The ten generating units at the Bonneville Navigation Dam on the Columbia River, Washington and Oregon, produced during the year 3,405,231,000 kwh.

INTRACOASTAL WATERWAYS

The Atlantic and the Gulf Intracoastal Waterways provide a protected channel for barge and other light-draft navigation following coastal sounds, bays, rivers, and artificial channels. This canal system, extending for more than 2,300 miles along the Atlantic and Gulf coasts, affords a channel 12 feet or more in depth throughout the Atlantic coast section from Trenton, N. J., to Jacksonville, Fla., and in the Gulf coast section from Carrabelle, Fla., to Corpus Christi, Tex.

During the past year the two floodgates at the Colorado River, Texas, crossing of the Gulf Intracoastal Waterway were completed. Dredging was undertaken in the section of the waterway between Galveston and Corpus Christi, to provide the authorized depth of 12 feet, involving the removal of some 7,000,000 cubic yards of material. Preliminary work was accomplished toward providing the authorized extension of the waterway below Corpus Christi to the vicinity of the Mexican border.

Other important coastal canals include the Cape Cod Canal, Massachusetts, and the Chesapeake and Delaware Canal which were maintained and operated in the interest of ocean-going vessel traffic.

INLAND WATERWAYS

The principal inland navigable waterways of the United States include the Mississippi River system, the Illinois Waterway, the New York State Barge Canal system, the San Joaquin-Sacramento River system in California, and the Columbia River system in the Northwest. The Mississippi River Waterway system embraces the river proper, the Red, Arkansas, Missouri, Illinois, Ohio, Tennessee, Monongahela, Allegheny, and Kanawha rivers and other streams. The Mississippi River has a channel suitable for ocean-going vessels upstream to Baton Rouge, La., and thence a channel for modern barge navigation to Minneapolis, Minn., and in its principal tributaries. The Illinois River and waterway to Lake Michigan has a barge channel which connects the Great Lakes with the Mississippi River system. Work was resumed on the construction of additional open river regulating works to improve the navigation channel in the middle Mississippi River between the mouth of the Ohio River and the mouth of the Missouri River, and also in the Missouri River below Sioux City, Ia.

The San Joaquin-Sacramento River system, which has an outlet to the sea through San Francisco Bay, provides a deep-draft channel to Stockton, Calif., on the San Joaquin River, and a moderate-draft channel to Sacramento, California, on the Sacramento River, and in addition other channel improvements. The Columbia River has a deep-draft channel to Portland, Ore., and Vancouver, Wash., and depths suitable for commercial vessel traffic to the head of the pool formed by the Bonneville Dam, and thence depths for barge navigation upstream to and including the Snake River.

These systems of inland waterways were maintained and operated during the fiscal year to provide for commerce and traffic of importance to the war, including the movement of newly-built war vessels from inland yards to the sea.

GREAT LAKES

The Great Lakes, which consist of Lakes Superior, Michigan, Huron, Erie and Ontario, have natural deep water except in the connecting channels which have been artificially deepened where necessary to accommodate deep-draft vessels. They have an outlet to the Atlantic Ocean *via* the St. Lawrence Waterway and *via* the Oswego and Erie branches of the New York State Barge Canal system and Hudson River.

During the year work was initiated on the extension to the Southwest Pier and reconstruction of Brady Pier in the St. Marys Falls Canal, Michigan. The Great Lakes harbors and connecting channels were maintained as required for the needs of commerce.

RIVER AND HARBOR AUTHORIZATIONS

The River and Harbor Act approved March 2, 1945 (Public Law 14, 79th Congress), authorized 292 new navigation projects or modifications of existing projects at an estimated total cost of $382,000,000. These additional improvements include a 12-foot channel in the Intracoastal Waterway from Jacksonville to Miami, Fla.; the improvement of the Apalachicola, Chattahoochee and Flint Rivers, Georgia and Florida; the development of the Alabama and Coosa Rivers and tributaries, Alabama and Georgia, for navigation, flood control, power development and other purposes.

Among other new projects are the Neches and Angelina Rivers, Texas, the Guadalupe River, Texas, and the improvement of the Trinity River and tributaries, Texas, for navigation, flood control and allied purposes. Also the above-mentioned act authorized the improvement of the Mississippi River between the Ohio and Missouri Rivers; the Illinois Waterway, Illinois, and Indiana Harbor Canal and Harbor, Indiana; the Missouri River between Sioux City, Ia., and the mouth; the construction of dams and open channel improvement for the purpose of providing slack water navigation on the Snake River, Oregon, Washington, and Idaho; and the construction of the McNary (Umatilla) Dam for purposes of navigation power development, and irrigation in the Columbia River, Oregon and Washington. Advance planning of the recently authorized projects is actively in progress so that construction may commence when funds therefor are appropriated by Congress.

COMMERCE

The water-borne commerce of the United States, Puerto Rico, Alaska, and the Hawaiian Islands, for the calendar year 1944 aggregated 605,928,000 tons. A total of 135,172,179 tons was carried on the Mississippi River and its tributaries, and 116,985,667 tons moved through the St. Marys Falls Canal connecting Lake Superior and Lake Huron.

During the calendar year 1944, the tonnages handled at the following ports of the United States were: Boston, 10,743,017; New York, 156,166,393; Philadelphia, 32,747,446; Baltimore, 17,651,441; New Orleans, 23,948,506; Houston, 16,956,838; Los Angeles, 19,992,843; San Francisco, 32,145,969; Seattle, 11,131,143; Duluth-Superior, 67,188,858; Chicago, 24,373,232; Detroit, 16,680,735; Toledo, 32,317,224; Cleveland, 20,526,477; and Buffalo, 23,360,759.

MISSISSIPPI RIVER SYSTEM

Works for the improvement of the channel of the river proper were continued during the fiscal year ended June 30, 1945 at various places below Cairo, Ill., and the levees built for flood control from Rock Island, Ill., to near Head of Passes, La., now extend from 484 miles above to 966 miles below Cairo which is at the confluence of the Mississippi and Ohio rivers. Below Cairo revetment was in place over 130 miles of river bank and 35 miles of permeable dikes are still in place for bank stabilization and channel regulation. The 2,500 mile levee system was substantially completed and now contains nearly 1,200,000,000 cubic yards of earth. The Bonnet Carre spillway structure was operated during the period of extreme high water in the spring of 1945. The flood control dam on the St. Francis River and two of the four planned in the Yazoo River Basin, were in operation during the spring flood. It was unnecessary, however, to operate the completed Birds Point-New Madrid floodway.

A navigable channel is available throughout the main river from Minneapolis to the Gulf of Mexico. Below Alton, Ill., the channel is maintained by open river works. In the 650 miles of river above Alton to Minneapolis, a system of low-head dams with locks provides a 9-foot channel depth adequate for modern barge navigation. The Ohio River and certain of its improved tributaries are also canalized to provide a 9-foot channel for barge navigation serving this highly industrialized region. The system of six locks and dams on the Ouachita and Black rivers provides depths of 6½ feet at low water, a distance of 351 miles, from the Red River to Camden, Ark. The Red River proper and the Arkansas River have been improved for light-draft navigation throughout a total length of more than 1,000 miles.

NATIONAL FLOOD CONTROL

Construction work on the Federal program for general flood control was begun in 1937 after the first funds for that purpose were appropriated by Congress. By the end of June 1945, 49 reservoirs and 114 local protection projects were in operation throughout the United States, exclusive of the large project authorized separately for the alluvial valley of the Mississippi River. In addition to previous authorizations, Congress, in the Flood Control Act approved Dec. 22, 1944, authorized expenditures amounting to $750,000,000 for approximately 150 additional flood control and multiple-purpose projects and for the continuation of previously approved river basin plans. With the passage of the 1944 Act, Congress has approved authorizations totaling $1,680,400,000 for the construction of about 650 reservoir and local protection projects. In the period from 1937 through June 30, 1945, funds totaling $605,742,000 have been appropriated for the prosecution of the general flood control program.

All of the authorized projects are parts of comprehensive coordinated plans for development of the river basins of the nation to provide economical flood protection and allied benefits for centers of industry and population, thousands of acres of rich agricultural lands, and vital lines of communication. In addition to their use for flood control, many of the reservoirs provide favorable possibilities for hydroelectric power generation, stream flow regulation, water conservation, recreation, and other water uses.

During the year, the Barker Dam on Buffalo Bayou, Texas, was essentially completed to provide partial flood protection for the City of Houston. The local protection projects for Tulsa, Okla., and the East Peoria Drainage and Levee District, Illinois, were essentially completed to protect those highly industrialized areas from flood damage. The improvement of the Vermilion River, Louisiana, to provide flood protection for a large agricultural area and the local protection project on the Ohio River at Jeffersonville and Clarksville, Ind., were continued during the year.

Subsequent to the cessation of hostilities in Europe, certain projects considered to be essential to the public health and safety were placed underway. By the close of the fiscal year 1945, construction had been initiated on a project for Lytle and Cajon creeks to protect the cities of San Bernardino and Colton, Calif., and vital Pacific coast railroad facilities from flood damage. Construction work on four local protection projects in the Ohio River Basin, which were suspended during the war, was resumed to provide flood protection for Evansville, Ind.; Paducah, Ky.; Portsmouth-New Boston and Cincinnati, O. The raising of existing levees along the Mississippi River between Alton and Gale, Ill., was also resumed.

The separately authorized project for the Sacramento River and its tributaries, California, will provide flood protection for cities and towns, rich agricultural lands, and railway and highway facilities of great importance to the civilian economy of the western part of the United States. During the year, construction was continued on incompleted levees along the Sacramento, American, and Feather rivers, and the clearing of obstructions was accomplished in the Butte Slough and Sutter By-passes.

Pursuant to authority provided by Congress in the Flood Control Act of Aug. 18, 1941 and in the Act of May 29, 1944 (Public Law No. 318, 78th Congress), an extensive program of emergency flood control work was undertaken to repair levees and other flood control structures damaged or destroyed by the floods of 1944 in order to restore protection to flood threatened areas. As the result of major flooding which occurred during the year on the Ohio, Missouri, Arkansas, Red, and Mississippi rivers, as well as on numerous other streams throughout the United States, Congress again enacted emergency legislation (Public Law No. 75, 79th Congress, approved June 5, 1945), to authorize the appropriation of $12,000,000 for emergency flood control work to repair levees and other flood control structures damaged by those floods. The great majority of the flood-damaged structures was constructed by local people or organizations and was of insufficient grade and section to withstand the crest stages resulting from such large floods. During the flood periods, Corps of Engineer personnel directed and carried out an effective program of flood fighting and rescue work in the threatened areas.

PERIODICAL PUBLICATIONS

Army and Navy Journal
1701 Connecticut Ave. N.W., Washington, D. C.
Army and Navy Register
511 Eleventh Street N.W., Washington, D. C.
Army Ordnance
706 Mills Building, Washington, D. C.
Cavalry Journal
1719 K St., N.W., Washington, D. C.
Coast Artillery Journal
631 Pennsylvania Ave., N.W., Washington, D. C.
Field Artillery Journal
1218 Connecticut Ave., N.W., Washington, D. C.
Infantry Journal
1115 Seventeenth Street N.W., Washington, D. C.
Marine Corps Gazette
United States Marine Corps, Washington, D. C.
Military Engineer
808 Mills Building, Washington, D. C.
Quartermaster Review
1026 17th St. N.W., Washington, D. C.
U. S. Coast Guard Magazine
3 Church Circle, Annapolis, Md.
U. S. Navy Magazine
South and Hanover St., Pottstown, Pa.
Waterways Journal
1605 Chemical Building, St. Louis, Mo.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

SERVICE SOCIETIES

AMERICAN LEGION, THE, National Headquarters, 777 N. Meridian St., Indianapolis, Ind.
AMERICAN REMOUNT ASSN., Otis Bldg., Washington, D. C.
AMERICAN SOCIETY OF NAVAL ENGINEERS, Navy Bldg., Constitution Ave., N.W., Washington, D. C.
ARMY ORDNANCE ASSN., Mills Bldg., 17th St. and Pennsylvania Ave., Washington, D. C.
ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES, Army Medical Museum, Washington, D. C.
CHEMICAL WARFARE SERVICE, Edgewood Arsenal, Maryland.
MILITARY ORDER OF THE PURPLE HEART, 815 15th St., N.W., Washington, D. C.
NAVY LEAGUE OF THE UNITED STATES, INC., Mills Bldg., Washington, D. C.
QUARTERMASTERS' ASSN. OF THE UNITED STATES, 1026 17th St., N.W., Washington, D. C.
RESERVE OFFICERS' ASSN. OF THE UNITED STATES, 2449 39th Pl., N.W., Washington, D. C.
SOCIETY OF AMERICAN MILITARY ENGINEERS, 808 Mills Bldg., Washington, D. C.

Society of Naval Architects & Marine Engineers, 29 W. 39th St., New York City.

United States Cavalry Assn., 1719 K St., N.W., Washington, D. C.

United States Field Artillery Assn., 1218 Connecticut Ave., N.W., Washington, D. C.

United States Infantry Assn., 1115 17th St., N.W., Washington, D. C.

United States Naval Institute, Annapolis, Md.

PATRIOTIC AND HEREDITARY

Colonial Dames of America, 421 E. 61st St., New York City.

Daughters of 1812, National Society, U. S., 1461 Rhode Island Ave., N.W., Washington, D. C.

General Society of Colonial Wars, P. O. Box 396, Rosemont, Pa.

General Society of Mayflower Descendants, 916 Madison Ave., Plainfield, N. J.

Military Order of Foreign Wars of the U. S., 15 Broad St., New York City.

Military Order of the Loyal Legion of the U. S., 1805 Pine Street, Philadelphia, Pa.

Military Order of the World War, 1700 Eye St., N.W., Washington, D. C.

National Security League, 45 W. 45th St., New York City.

National Society of Colonial Dames of America, 2715 Q St., N.W., Washington, D. C.

National Society of the Daughters of the American Revolution, 1720 D St., N.W., Washington, D. C.

National Society of Professional Engineers, National Press Building, Washington, D. C.

National Society of the Sons of the American Revolution, 1227 16th St., N.W., Washington, D. C.

Naval and Military Order, Spanish-American War Veterans, 184 State House, Boston, Mass.

Pilgrim Society, Pilgrim Hall, Court St., Plymouth, Mass.

Society of the Cincinnati, Inc., 2118 Mass. Ave., N.W., Washington, D. C.

Sons of Confederate Veterans, 609 Law Bldg., Richmond, Va.

Sons of Union Veterans of the Civil War, Colonial Trust Bldg., Reading, Pa.

United Confederate Veterans, 1528 Lowerline St., New Orleans, La.

United Spanish War Veterans, Inc., 40 G St., N.E., Washington, D. C.

Veterans of Foreign Wars of the U. S., Broadway at 34th St., Kansas City, Mo.

PART FOUR

ECONOMICS AND BUSINESS

DIVISION X

BUSINESS AND FINANCE

ECONOMIC AND BUSINESS CONDITIONS

By S. S. Huebner
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WAR-PEACE TRANSITION

During 1945, business experienced a transition from war to peace conditions. The first half of the year was influenced by extraordinary demands for war materials, while during the latter half of the year business concerned itself primarily with a rapid reconversion to the needs of domestic consumption. The reaction from abnormal war demands, it seemed, would in all likelihood be counterbalanced by the filling of the huge backlog of much needed goods, repairs, and new construction. Serious labor disturbances, however, retarded the reconversion procedure during the last quarter of the year, with the result that 1945 production ended somewhat lower than the record-breaking years of 1944 and 1943.

MODERATE DECLINES IN BUSINESS ACTIVITIES

Taking economic barometers as a whole, moderate declines occurred along nearly all important lines of business activity. The only noteworthy exceptions, where substantial increases or improvements occurred, were the financial barometers (security market, new capital flotations, and corporate dividend disbursements), building construction, and business failures. By November, 1945, as compared with November, 1944, the iron and steel industry reported a decline of 12 per cent in iron production, of 14 per cent in steel production, and of 15.7 per cent in the rate of operating capacity for steel output. Railroad freight traffic was also smaller, total revenue freight car loadings by November being 6.7 per cent under the showing for November of 1944. Agricultural food and feed production was slightly under the record for 1944 and 1943, with the price level somewhat higher than during the previous year. The automotive industry operated during the year at an $8,500,000,000 yearly mark, as compared with a $10,000,000,000 yearly record during 1944 and 1943. Bituminous coal and lignite production showed a decline of 8.6 per cent during the first 11 months of the year, while coke output during the same period declined 26 per cent. Electric output declined about 10.6 per cent by the end of November, compared with the same month of the preceding year. Bank clearings, comparing December with December, were down by 1.6 per cent for the nation as a whole, and 7.1 per cent for the nation exclusive of New York

City. Exports for the first nine months (latest available) declined by 27 per cent, compared with the same period of 1944. Moderate declines also occurred in the production of textiles, meat packing, and the manufacture of food products, leather products, and lubricating oils, while very substantial decreases occurred in the manufacture of machinery, transportation equipment, and plate glass.

IMPROVEMENT IN FIVE BUSINESS BAROMETERS

While nearly all economic indices showed reactionary tendencies during 1945, note should be taken of five business barometers where a marked improvement occurred during the year. Building construction, as will be explained later, showed a decided upswing over the preceding dismal war years, but still remained 20 per cent under the pre-war levels of 1939 and 1940. The commercial failure situation remained excellent throughout the year. The number of business failures (first nine months as reported by Dun and Bradstreet) amounted to only 646 as compared with 980 for the same period of 1944, while failure liabilities for the first nine months totaled only $24,000,000, or about the same total as that reported for the corresponding period of 1944. Corporate dividends on listed shares on the New York Exchange (first nine months) increased 4.2 per cent over the excellent record of 1944, and the increase was distributed over nearly all of the 28 categories of stocks reported by the New York Stock Exchange. New capital flotations, as explained later, showed an approximate doubling during the year as compared with 1944, and that year in turn represented a doubling over 1943. In this connection the redemption of bonds, a very favorable factor in the financial setup of corporations, also took place at a much larger rate, the redemptions for the first nine months of the year totaling $3,483,000,000, compared with $1,362,000,000 for the same period of 1944.

BULL MARKET IN SECURITIES

Of all leading economic barometers, the security market probably presents the brightest picture. Throughout the year, in strong contrast to 1944 and 1943, this market may be described as a persistently active bull market. All leading groups of stocks participated in the rise. Combining all the leading groups of stocks, the average monthly price level experienced an appreciation of 22.3 per cent during the first ten months of the year, as contrasted with an increase of only 8.2 per cent for the corresponding period of 1944. Transactions on the New York Stock Exchange also showed an increase of 44 per cent over 1944. Gilt edge bonds continued to rise slightly beyond the exceedingly high level of 1944, the appreciation amounting to 1.9 per cent. Many factors contributed to bring about the bull market in securities during 1945, (explained under the section "The Security and Money Markets"), but uppermost seemed to be prevailing inflation thinking, the pressure of idle capital seeking investment, and the general belief in an immediate postwar boom. These factors seemed to brush aside all unfavorable influences, such as the appalling list of labor disturbances throughout the nation and the difficulties surrounding business reconversion from war to peace conditions.

AGRICULTURE

Compared with the record-breaking crop production of 1944, the 1945 crop report indicates a slightly smaller total food and feed production. The decline, however, was not enough to cause any serious shift in civilian consumption. To quote the summary of the *Guaranty Survey* (Nov. 27, 1945):

"A slight decline in general crop prospects in October brought the total indicated production to a level fractionally below the record wartime crops of 1942 and 1944, according to the Department of Agriculture. Record totals are estimated for wheat, oats, rice, sugar cane, some fruits, and truck crops; and forecasts for hay, potatoes, flaxseed, soy beans, grapes, peanuts, pecans and walnuts indicate crops not far below record totals. The corn crop is estimated at a figure slightly above three billion bushels, which is below last year's record output but far above the average for recent years.

"A conspicuous exception to the generally favorable crop situation is the cotton estimate, which is the smallest since 1921 and the second smallest since 1899. The indicated production of 9,368,000 bales is 411,000 bales below the estimate at the beginning of October and is nearly three million bales below the 1944 output. The small crop is due partly to a reduction in acreage and partly to a decline in the average yield per acre. The acre yield this year is estimated at 249.7 pounds, which is 15 per cent below the record figure for 1944 but is 8 per cent above the average for the ten years preceding."

Prices of leading farm products during 1945 showed very substantial increases along nearly all lines, except where governmental maximum price levels were established. Thus, using closing prices for agricultural commodities, quotations on Nov. 1, 1945 (*Guaranty Survey,* Nov. 27, 1945), compared as follows with prices on the corresponding date in 1944: wheat, No. 2 red winter, Chicago, per bushel, \$1.80 as compared with \$1.71⅞; corn, No. 2, yellow, Chicago, \$1.18½ as compared with \$1.07; rye, No. 2, New York, per bushel, \$1.959 as compared with \$1.271; oates, No. 2, white, Chicago, per bushel, \$.688 as compared with \$.69; and cotton, middling, New Orleans, per pound, 22.35¢ as compared with 20.10¢. The following prices may be mentioned (Babson Monthly Price Table, Nov. 1, 1945) by way of comparison with the same date for 1944: beans, domestic pea, cwt., \$6.82 as compared with \$6.85; butter, creamery, ex. (92 score), pound, \$.423 with \$.423; cheese, fancy flats, held, New York State, pound, \$.310 with \$.310; eggs, mixed colors, standards, doz., \$.461 with \$.402; flour, Spring std. patent, Minn., cwt., \$3.340 with \$3.340; lard, choice Western, pound, \$.138 with \$.138; flaxseed, cash closing, Duluth, bushel, \$3.10 with \$3.10; barley, Milwaukee, bushel, \$1.303 with \$1.23; cattle, live, weekly aver., Chicago, cwt., \$17.10 with \$16.25; hogs, live, weekly aver., Chicago, cwt., \$14.80 with \$14.65; and sheep, live, weekly aver., Chicago, cwt., \$5.10 with \$5.25.

It is interesting to note that, because of much more effective control over prices of non-agricultural commodities during the war, as pointed out by the *Guaranty Survey,* "the price level for farm products has risen nearly 115 per cent since the war began" as compared with "prices of all commodities other than farm products and foods showing a rise of only 24 per cent thus far during the present war." The further comment is made that, "while prices of farm products have risen slightly more than they did during the last war, prices of commodities other than farm products and foods have increased only one-fourth as much."

MANUFACTURING AND MINING INDUSTRIES

In these industries; price changes during 1945, as compared with 1944, were relatively small, chiefly because of governmental price levels. Comparing November, 1945, with the corresponding quotations for 1944, the following price comparisons may be selected from those listed in the *Guaranty Survey* (Nov. 27, 1945). (An asterisk sign is used wherever a maximum price was established under government regulations.) Coffee, 13⅜¢* per pound as compared with 13⅜¢*; copper, 11.87½¢* per pound as compared with 11.87½¢*; hides, 15½¢* per pound as compared with 15½¢*; pig iron, \$25.25* per gross ton as compared with \$23.50*; steel billets, Pittsburgh, \$36 per gross ton as compared with \$34; lead, 6.50¢* per pound as compared with 6.50¢*; petroleum, Pennsylvania, \$3* per barrel as compared with \$3*; rosin, \$6.76* per 100 lbs. as compared with \$5.81*; rubber, .22½* per pound as compared with .22½¢*; sugar, 3.75¢* per pound as compared with 3.75¢*; tin, 52¢* per pound as compared with 52¢*;

wool, Ohio fine delaine, $1.21* per pound as compared with $1.21*; and zinc, 8.25¢* per pound as compared with 8.25¢*.

NEW CAPITAL FLOTATIONS

Although new capital financing (as distinguished from refunding issues) doubled during 1944 as compared with 1943, the year 1945 indicates approximately another doubling as compared with 1944. The total new capital financing for the first nine months of 1945 (latest available) aggregated $812,262,000, as compared with $459,407,000, $199,680,000, and $614,069,000 for the corresponding months of 1944, 1943, and 1942, and, for the corresponding periods, with $770,000,000 for 1941, $458,000,000 for 1940, $311,000,000 for 1939, $316,000,000 for 1938, and $1,154,000,000 for 1937. It should also be noted that a considerable monthly fluctuation in new capital flotations took place during 1945. Thus, for January, February and June, the monthly totals reached only $42,741,000, $26,925,000 and $1,352,000, respectively, whereas for May and July the monthly totals reached $156,960,000 and $211,614,000.

CORPORATE FINANCING

	1944		1945	
	Capital	Refunding	Capital	Refunding
January	$ 37,773,000	$122,683,000	$ 42,741,000	$272,280,000
February	62,616,000	96,146,000	26,925,000	136,332,000
March	45,456,000	77,535,000	62,044,000	295,766,000
April	73,464,000	107,636,000	100,856,000	554,222,000
May	32,616,000	184,091,000	156,960,000	367,086,000
June	15,373,000	78,754,000	1,352,000	74,415,000
July	57,328,000	153,917,000	211,614,000	749,921,000
August	105,573,000	140,608,000	106,844,000	335,478,000
September	29,208,000	400,717,000	102,926,000	698,466,000
October	130,618,000	610,535,000		
November	22,816,000	335,894,000		
December	18,681,000	114,104,000		

Source: *Survey of Current Business*, November, 1945.

YEARLY TOTALS

	Capital	Refunding
1945*	$ 812,262,000	$3,483,966,000*
1944	631,522,000	2,422,620,000
1943	375,623,000	684,997,000
1942	637,899,000	419,866,000
1941	1,040,042,000	1,552,143,000
1940	736,382,782	2,026,195,056
1939	371,249,537	1,807,623,508
1938	871,998,950	1,267,245,739
1937	1,225,012,213	1,208,679,946
1936	1,214,950,299	3,416,995,382
1935	403,569,958	1,863,858,807
1934	178,257,949	312,836,500
1933	160,717,178	220,866,478
1932	325,361,625	318,533,720
1931	1,763,448,723	825,516,700
1930	4,944,403,166	528,875,877
1929	8,649,439,560	1,386,921,569
1928	6,079,602,416	1,738,274,615
1927	5,391,008,544	1,928,187,260
1926	4,357,002,750	942,550,970
1925	4,100,725,167	637,384,524
1924	3,322,295,764	516,275,300
1923	2,702,496,155	530,343,942

* Nine months.
Source: *Commercial and Financial Chronicle.* 1941–1945 figures from *Survey of Current Business.*

The total of refunding issues for the first nine months of the year also showed a huge increase, the total standing at $3,483,966,000, in contrast to the corresponding figure for the same period of 1944 of $1,362,087,000, $445,000,000 for 1943, and $296,000,000 for 1942. The 1945 figure may also be compared with the corresponding figures of $1,354,000,000 for 1941, and $1,252,000,000 for 1940. Since September, judging from press accounts, the 1945 increase in bond redemptions has continued at a rapid rate. It should be noted that the new capital and refunding totals for the first nine months of 1945, $812,000,000 and $3,484,000,000, respectively, greatly exceed the totals for all of 1944, namely, $632,000,000 and $2,423,000,000.

BANK CLEARINGS

For 1945, bank clearings fell slightly below those of 1944, although they greatly exceeded those of 1943 and 1942. The grand total for the week ended Dec. 1 (*Commercial and Financial Chronicle*), for 111 cities, was $13,395,133,009, as compared with $13,618,999,444 for the corresponding week of 1944, a decrease of 1.6 per cent. For the corresponding week of 1943 and 1942, the totals were $9,855,867,228 and $9,091,533,862, respectively. Exclusive of New York City, the nation's Federal Reserve Districts show total bank clearings for the week ending Dec. 1 of $5,304,408,391, a decrease of 7.1 per cent as compared with the 1944 corresponding week's total of $5,712,038,159. The large showing for 1945 (exclusive of New York City) also compares with $4,688,968,852 and $4,566,163,890 for the corresponding week of 1943 and 1942, respectively. The respective gains and losses for each of the 12 Federal Reserve Districts, for the week of Dec. 1, 1945, in comparison with 1944, are shown by the following table:

Federal Reserve District	1945 Millions	1944 Millions	Increase or Decrease %
First—Boston (12 cities)	512	639	−19.9
Second—New York (12 cities)	8,283	8,136	+1.8
Third—Philadelphia (10 cities)	749	828	−9.6
Fourth—Cleveland (7 cities)	612	724	−15.6
Fifth—Richmond (6 cities)	343	387	−11.4
Sixth—Atlanta (10 cities)	448	422	+6.2
Seventh—Chicago (17 cities)	741	791	−6.4
Eighth—St. Louis (4 cities)	350	362	−3.2
Ninth—Minneapolis (7 cities)	248	241	+2.9
Tenth—Kansas City (10 cities)	330	313	+5.4
Eleventh—Dallas (6 cities)	189	160	+18.4
Twelfth—San Francisco (10 cities)	590	616	−4.1
Grand Total (111 cities)	13,395	13,619	−1.6
Outside New York City	5,304	5,712	−7.1

SECURITY MARKETS

Unlike 1944 and 1943, the 1945 security market may be characterized as a distinctly active bull market. Combining all the leading groups of stocks, the average monthly price level experienced an appreciation of 22.3 per cent during the first ten months of the year, as contrasted with an increase of only 8.2 per cent for the corresponding period of 1944. Gilt edge bonds continued to rise slightly throughout the year despite their very high level at the close of 1944, showing an appreciation of 1.9 per cent as compared with a rise of 2.5 per cent during 1944.

Combining all leading groups of stocks, three distinct price trends occurred during 1945, namely, (1) a rise from January to June with monthly averages increasing from 107.1 to 119.8, or 11.8 per cent, (2) a minor decline during July from 119.8 to 117.4, or 2 per cent, and (3) a rise from August to October from 117.4 to 131.0, or 12.4 per cent (Standard and Poor's Index). By December press accounts were stressing the attainment of the stock market level to a 15-year peak. For the first ten months of the year, the following monthly average price increases occurred in the four leading groups of stocks: railroad stocks 19.7 per cent, industrials 21.1 per cent, public utilities 33.9 per cent, and coppers 21.1 per cent. The annual volume of transactions on the New York Stock Exchange also reached the large total of 377,563,575 shares, or nearly 44 per cent in excess of the 1944 total. Million and 1,500,000-share days were the general rule. Transactions on the New York Curb Market were also double the total of 1944.

Although many unfavorable factors prevailed industrially, the security market seemed, throughout the latter half of the year, to be in the grip of inflation thinking and the pressure of idle funds seeking employment. (See "The Security and Money Markets," p. 424.)

RAILROAD INDUSTRY

The year 1945 showed a somewhat smaller railroad traffic than prevailed during the preceding four years of 1944-1941, described in previous issues of THE AMERICAN YEAR BOOK for those years. Moreover, as the year progressed, the trend toward a decline became somewhat more marked. According to the Association of American Railroads (announcement Nov. 24), revenue freight car loadings during the first 11 months of 1945 totaled 38,354,861, a decrease of about 3.3 per cent when compared with the 1944 total of 39,709,213. For the same period of 1943 the total stood at 38,710,546. For the week of Nov. 24, 1945, total revenue freight car loadings fell below the corresponding week of 1944 by 6.7 per cent, and by 12.6 per cent when compared with the same week of 1943.

COAL AND COKE PRODUCTION

Production in this important industry showed a material decline compared with the record production of the previous year. From Jan. 1 to Nov. 24, 1945, (latest available) total output of bituminous coal and lignite amounted to 517,000,000 net tons, compared with 565,000,000 tons produced during the corresponding period in 1944, a decrease of 8.6 per cent. Beehive coke production from Jan. 1 to Nov. 24, 1945, totaled 4,760,000 tons, compared with 6,475,000 for the corresponding period of 1944, a decline of 26 per cent.

EXPORTS AND IMPORTS

As explained in previous years, this business barometer became badly warped by war conditions, and particularly so with reference to exports where the tremendous volume is traceable to huge shipments abroad of war materials and lend-lease commodities. Exports of merchandise for the first nine months of 1945 (latest available, *Survey of Current Business*), reached the large total of $7,796,975,000. This figure compares with exports of merchandise for the first nine months of 1944 of $10,741,746,000, of $9,107,368,000 for the corresponding period of 1943, and with annual totals of $4,022,000,000 for 1940, $3,177,000,000 for 1939, $3,094,000,000 for 1938, $3,349,000,000 for 1937, and $5,241,000,000 for the record peace year of 1929. The large decrease of $2,945,000,000 during the first nine months of 1945 as compared with the corresponding period of 1944, or 27 per cent, is no doubt attributable to the cessation of war in Europe and the Orient, with its resulting drop in the exportation of war materials.

By way of striking contrast, imports of general merchandise for the first nine months of 1945 totaled only $3,149,841,000, as compared with $2,922,906,000 for the corresponding period of 1944, with $2,448,909,000 for the same period of 1943, and with annual totals of $2,626,000,000 for 1940, $2,318,000,000 for 1939, $1,960.000,000 for 1938, $3,084,000,000 for 1937, and $4,399,000,000 for the record peace year of 1929. The enormous difference between exports and imports in 1945 ($4,647,134,000 for the first nine months of the year) clearly indicates abnormal war conditions for a substantial part of the year. It is noteworthy that shipments abroad were still so large as to make the 1945 exports for the first nine months ($7,797,000,000) exceed those for the banner peace year of 1929 ($5,241,000,000) by about 50 per cent.

AUTOMOTIVE INDUSTRY

The 1944 account explained that the war production of automotive plants reached the $10,000,000,000 yearly mark during 1943 and 1944, although exact figures of the amounts of production of various types of fighting equipment were not published for these years. According to charts published in the September, 1945, issue of *Automotive War Production*, issued by the Automotive Council for War Production, annual automotive war output (by the middle of 1945) was still in the neighborhood of $8,500,000,000. With the lifting of censorship restrictions, the industry reported in this issue, for the duration of the war, a total output of $28,970,000,000 by categories as follows: aircraft and parts, $11,245,000,000; military vehicles and parts, $8,591,000,000; tanks and parts, $3,781,000,000; marine equipment, $1,952,000,000; guns and parts, $1,590,000,000; ammunition, $908,000,000; and all other categories, $904,000,000. For the latter half of 1945, all efforts in this large industry seemed directed toward speedy reconversion to pre-war types of production, since (1) all control upon passenger automobile output was lifted on Aug. 24, (2) the War Production Board ended its wartime allocations and priority controls on Sept. 30, and (3) nearly all restrictions on oil refining operations and all quantity and quality limitations on civilian consumption of petroleum products were abolished on Aug. 17. However, the problem was greatly complicated by the serious strike situation in this industry at the close of the year.

Only estimates of 1946 production have been ventured, some of the industry's representatives estimating in August, 1945 that output of passenger cars in the following seven months would exceed 1,100,000 cars, while others expect production by the summer of 1946 at an annual rate of 4,000,000 cars. Moreover, a high production of trucks is also anticipated. According to the manager of the Truck Division of the Automobile Manufacturers' Association, truck production "should be close to the average levels of the biggest peacetime year the industry ever experienced." It was also explained by this source that full activity for several years is necessary to catch up with the accumulated demand for trucks. The present deficiency for civilian use is estimated at 2,000,000 units, whereas the peak yearly production was 891,000 trucks in 1937, and the average annual output for the past three years was only 87,400 trucks exclusive of military units.

IRON AND STEEL OPERATIONS

Although a high peacetime consumption of iron was apparently expected to fill an enormous backlog, a fairly considerable decline in iron production occurred during the later months of 1945 as compared with 1944. Much of the contraction was attributable to coal strikes which seriously affected September and October production. The first ten months production of 45,818,128 tons compared with 52,036,708 tons for the corresponding period of 1944, a decline of nearly 12 per cent.

Demand for steel has also remained unusually heavy, although coal strikes also showed their adverse affect during October and November, 1945. November output of ingots and steel for castings totaled 6,246,759 tons as compared with 7,278,719 tons for November, 1944, a decrease of slightly over 14 per cent. Operations for November, 1945, averaged 79.5 per cent of capacity, against 94.3 per cent in November a year ago, a decline of nearly 15.7 per cent.

ELECTRIC OUTPUT

According to the Edison Electric Institute, the production of electricity by the electric light and power industry of the United States totaled 4,042,915,000 kwh for the week ended Dec. 1, 1945. This output compares with 4,524,257,000 kwh for the corresponding week of 1944, thus showing a falling off for 1945 of 10.6 per cent. During all of the four months preceding Dec. 1, the weekly output for 1945 was consistently under that of 1944, the weekly decrease ranging from a minimum of 0.5 per cent to a maximum of 12.1 per cent. The output of 4,042,915,000 kwh for the week of Dec. 1, 1945, also compares with 4,560,000,000 kwh for the corresponding week of 1943; 3,884,000,000 kwh for the corresponding week of 1942; 3,976,000,000 kwh for 1941; 2,755,000,000 kwh for 1940; 1,415,000,000 kwh for the depression year of 1932; and 1,637,000,000 kwh for the prosperity year of 1929.

BUILDING CONSTRUCTION

As explained in 1944, this important industry proved exceptional in that it showed a large decrease during 1944 as compared with 1943. During the first nine months of 1945, private construction experienced a material upswing owing to the rapid recovery of activity in non-residential building. Construction financed with public funds, however, continued the decline which started during the closing months of 1942.

According to the Bureau of Labor Statistics of the U. S. Department of Labor, total construction expenditures in the United States, during the first nine months, amounted approximately to $4,077,000,000. This exceeded the total for the corresponding period of 1944 by $535,000,000, but was still 20 per cent under the pre-war levels of 1939-1940. Privately financed construction for 1945 (first nine months) amounted to $2,495.000,000 as compared with $1,769,000,000 for the same period of 1944 (an increase of 41 per cent), while publicly financed construction dropped to $1,582,000,000, a decline of 11 per cent below the first nine months of 1944. Quoting the Department of Labor's account:

"The dollar volume ($1,027 million) of private non-residential building reported during the first three-quarters of 1945 exceeded all levels for a like period of time since the prosperous twenties, except for 1937 and 1941, and accounted for four-fifths of the gain over 1944 in privately financed construction as a whole. Primarily responsible for this record was the 623 million dollars spent for industrial facilities, which was more than 2½ times the 1944 volume. Expenditures for commercial buildings followed next, rising from 79 million dollars in 1944 to 224 million in 1945, and construction of all other non-residential buildings (schools, hospitals, institutions, etc.) increased from 101 to 180 million dollars.

"Privately financed residential (non-farm) construction expenditures accounted for only 25% of all private construction activity in the period January to September, 1945, as compared with 31% in the corresponding months of 1944 and over 50% in each of the prewar years of 1939-1941. Estimates for private residential building totaled 633 million dollars in the first nine months of 1945, and 546 million dollars in 1944. During the comparable periods in the years 1939-1941 they were 1,788, 1,330, and 2,329 million dollars, respectively."

COMMERCIAL FAILURES

The 1944 account explained that the 1944 record of commercial failures represented a decided improvement over 1943, notwithstanding the fact that that year was the best on record for a long series of years. The 1945 showing was even better than that recorded for 1944, and showed a distinct continuation of the improving business failure situation during the past eight years. The number of business failures reported by Dun and Bradstreet for the first nine months of 1945 (latest available) amounted to only 646 as compared with 980 for the same period in 1944, and 2,752, 7,641, 9,299, 10,398 and 11,197 for the corresponding period of 1943, 1942, 1941, 1940, and 1939. The nine months record of 1945 (646) also compares with full yearly records of 12,836 for 1938, 9,490 for 1937, 9,607 for 1936, 12,244 for 1935, 12,091 for 1934, 19,859 for 1933, and 31,822 for 1932, the bottom year of the depression.

With respect to failure liabilities, 1945 also showed a remarkable record. For the first nine months of the year, total liabilities of failures amounted to only $24,189,000, as compared with $23,029.000, $37,097,000, $81,387,000, $106,105,000, $124,085,000, and $138,612,000 for the corresponding period of 1944, 1943, 1942, 1941, 1940, and 1939. The 1945 nine months record ($24,189,000) also compares with the following full yearly record of $31,660,000 for 1944, $45,339,000 for 1943, $100,763.000 for 1942, $136,000,000 for 1941, $167,000,000 for 1940, $168,000,000 for 1939, $247,000,000 for 1938, $183,000,000 for 1937, and $928,000,000 for 1932, the bottom year of the depression.

X. BUSINESS AND FINANCE

CORPORATE DIVIDENDS

According to the New York Stock Exchange's monthly magazine, *The Exchange,* dividends of 705 separate common stocks listed on the New York Exchange (against 676 dividend payers in 1944), for the first nine months of 1945, exceeded those of the corresponding period of 1944 by 4.2 per cent. Four hundred and seventy-six corporations paid the same dividend as in the preceding year, 178 increased their dividend distribution, and 54 paid lower dividends or suspended dividends altogether. In the aggregate, the dividend disbursement of all the stocks for the nine months ended Sept. 30 amounted to $1,537,542,000, as compared with $1,474,967,000 during the corresponding period of 1944.

The Stock Exchange's list contains 28 categories of stocks, and 1945 showed that 22 of these groups distributed larger totals than during 1944. Two of the groups remained unchanged in the amount of dividend distribution, and only three of the groups distributed a smaller dividend total. The largest gainers were, in the order of their increases: "miscellaneous," or "all other groups," with a gain of 28.7 per cent; "textiles" with a gain of 26.8 per cent; "finance" with a gain of 15.8 per cent; "amusement," 10.3 per cent; "building," 10.0 per cent; "rubber," 9.9 per cent; "United States companies operating abroad," 9.8 per cent; "shipping services," 9.3 per cent; "foreign stocks," 9.3 per cent; "paper and publishing," 9.2 per cent; "garment manufacturers," 8.3 per cent; "petroleum," 8.2 per cent; "electrical equipment," 7.8 per cent; "food," 5.3 per cent; "railroad," 5.1 per cent; "retail merchandising," 3.6 per cent; and "farm machinery," 3.3 per cent. Only three categories show losses as compared with 1944 (only one of a substantial nature), namely: "business and office equipment," 6.4 per cent; "aviation stocks," 0.7 per cent; and "tobacco," 0.5 per cent. It is also worthy of note that the steel, iron, and coke stocks showed a gain of only 0.8 per cent, but this contrasts with a loss of 1.8 per cent during the corresponding period in 1944. Commenting on its detailed report, *The Exchange* (October, 1945 issue) makes the following statement:

"Examination of individual groups of the table discloses results in dividends which grew out of the sustained corporate effort in putting the final touches on victory. These dividends gains over 1944 afford illustrations: electrical, 7.8 per cent, petroleum, 8.2 per cent, rubber, nearly 10 per cent; shipping services, 9.3. At the same time, however, other items seem to show the results of civilian consumption in directions where the war effort had passed its peak early in 1945 or even earlier. Such as: building construction, a gain of 10 per cent; finance, 15.8 per cent (in this category of stocks it would appear that distinct peace-time relaxations were making themselves felt), garment manufactures, 8.3 per cent; textiles, 26.8 per cent."

GENERAL BUSINESS INDICES

Using the industrial production figures of the *Federal Reserve Bulletin* (adjusted for seasonal variation) it appears that the record for September, 1945, (latest figures available) shows a mixed situation as regards increases or decreases in the important lines of business as compared with 1944, with decreases largely in the majority. Thus moderate increases were shown in only four leading types of industries, comparing September, 1945, with September, 1944, as follows: wheat flour production, with an increase from 113 to 126, newsprint consumption from 83 to 93, petroleum refining from 272 to 285, and tobacco products from 124 to 160. Between the same dates, exceptionally large declines were recorded in eight leading industries, mostly of the durable goods type, namely, iron and steel with a decrease from 202 to 164, machinery products from 427 to 250, transportation equipment from 695 to 308, plate glass from 165 to 79, nonferrous metals and products from 238 to 198, beehive coke from 389 to 226, anthracite coal from 129 to 114, and silver production from 57 to 42.

On the contrary, moderate changes were shown between September, 1944, and September, 1945, in seven leading industries, with a slight decline in all cases except one, namely: textiles, with a decrease from 147 to 142, manufactures of food products, from 146 to 141, leather products from 121 to 113, bituminous coal from 151 to 148, and crude petroleum from 149 to 140. The one exception referred to is lubricating oils where there was a slight increase from 132 to 138.

INDUSTRIAL PRODUCTION

(1935–1939 average = 100)

	Adjusted for Seasonal Variation			Without Seasonal Adjustment		
	Sept. 1945	Oct. 1944	Sept. 1944	Sept. 1945	Oct. 1944	Sept. 1944
MANUFACTURES						
Durable Goods						
Iron and Steel	164	206	202	164	206	206
Machinery	p 250	428	427	p 250	428	427
Transportation Equipment	p 308	704	695	308	704	695
Plate Glass	79	174	165	79	64	66
Nonferrous Metals and Products	(Aug.) p 198	233	238	(Aug.) p 198	233	238
Beehive Coke	226	384	389	226	384	389
Non-Durable Goods						
Textiles	p 142	146	147	p 142	146	147
Meat Packing	141	154	161	134	156	148
Wheat Flour	p 126	118	113	p 137	125	123
Manufactured Food Products	p 141	149	146	p 161	159	166
Newsprint Consumption	93	89	83	94	93	84
Leather and Products	p 113	115	121	p 112	115	121
Petroleum Refining	(June) 285	281	272	(June) 285	281	272
Lubricating Oil	(Aug.) 138	135	132	(Aug.) 137	135	132
Tobacco Products	160	120	124	169	125	131
Minerals						
Bituminous Coal	p 148	152	151	p 148	152	151
Anthracite Coal	p 114	133	129	p 114	133	129
Petroleum, Crude	p 140	148	149	p 140	148	149
Iron Ore				(Aug.) 289	259	311
Silver	(July) 42	58	57	(July) 42	58	57

(p = preliminary)
Source: *Federal Reserve Bulletin.*

COMMODITY INDEX NUMBERS

Using the U. S. Department of Labor wholesale price index for main groups of commodities, 1945 experienced a very slight upward change in the price level, namely, from 104.9 for January, 1945, to 105.2 for September (latest available). The January index figure of 104.9 compares with 103.3 for January, 1944, 101.9 for January, 1943, 96 for January, 1942, and 80.8 for January, 1941. During the first nine months of 1945, this index represents a price increase of less than ½ of 1 per cent, and since January, 1941, of 30.2 per cent. The September, 1945, figure of 105.2 compares with total yearly averages of 104 for 1944, 103.2 for 1943, 98.8 for 1942, 87.3 for 1941, 78.6 for 1940, 77.1 for 1939, 78.6 for 1938, 86.3 for 1937, 80.8 for 1936, 80 for 1935, 75 for 1934, 66 for 1933, 64.9 for 1932, and 154.4 for 1920, the highest yearly average under this index since the beginning of the century. As already explained under the sections in this review dealing with "Agriculture" and "Manufacturing and Mining Industries," price changes for leading commodities during 1945 were extremely slight, and in many instances remained unchanged.

It is also interesting to note that the United Kingdom Board of Trade index shows a very small increase for 1945, namely, from 167.2 for January, 1945, to only 169.6 for September (latest available). The latter figure compares with 164 for January, 1944, with 162.1 for January, 1943, 156.4 for January, 1942, and 149.5 for January, 1941. In tabular form, the index numbers of the United States Department of Labor and of the United Kingdom Board of Trade for leading groups of commodities at the close of the year, compared with former years, are as follows:

BUREAU OF LABOR STATISTICS WHOLESALE PRICE INDEX FOR MAIN GROUPS OF COMMODITIES

(1926 = 100)

Commodity Groups	Dec. 15, 1945	Dec. 23, 1944	Dec. 18, 1943	Dec. 12, 1942	Dec. 20, 1941
All Commodities..........	106.7	104.6	102.9	100.5	94.0
Farm Products.................	131.3	126.2	121.8	112.0	96.0
Foods.........................	108.3	105.7	105.7	104.0	91.6
Hides and Leather Products......	119.4	116.7	117.9	118.4	115.5
Textile Products................	100.6	99.0	97.2	96.6	91.4
Fuel and Lighting Materials......	85.2	83.7	82.6	80.0	79.0
Metals and Metal Products......	105.3	103.9	103.9	103.9	103.4
Building Materials..............	118.8	116.4	113.4	110.0	107.5
Chemicals and Drugs............	96.1	104.8	100.3	99.5	91.7
Housefurnishing Goods..........	106.4	106.1	104.4	104.1	102.3
Miscellaneous..................	95.0	93.9	93.0	90.3	87.5
Raw Materials..................	119.7	115.4	112.1	104.7	93.3
Semi-manufactured Articles......	96.8	94.7	93.1	92.5	90.0
Manufactured Products..........	102.6	101.3	100.4	99.8	95.1
All Commodities other than Farm Products....................	101.3	99.8	98.9	98.0	93.5
All Commodities other than Farm Products and Foods...........	100.5	99.0	97.8	96.2	93.9

Source: *Commercial and Financial Chronicle.*

INDEX NUMBERS OF COMMODITY PRICES

	U. S. Dept. of Labor		U. K. Board of Trade	
	1944	1945	1944	1945
January....	103.3	104.9	164.0	167.2
February...	103.6	105.2	164.6	167.2
March.....	103.8	105.3	164.9	167.8
April......	103.9	105.7	165.5	167.7
May.......	104.0	106.0	166.1	168.4
June.......	104.3	106.1	166.1	170.1
July.......	104.1	105.9	167.1	170.8
August.....	103.9	105.7	167.5	170.6
September .	104.0	105.2	167.1	169.6
October....	104.1		166.7	
November .	104.4		166.9	
December..	104.7		167.2	

(Source: U. S. Dept. of Labor—*Standard Trade & Security*, "Current Statistics")

(Source: U. K. Board of Trade—Bank of England Statistical Summary)

YEARLY AVERAGE

(U. S. Dept. of Labor)

1904..........	59.7	1925..........	103.5
1905..........	60.1	1926..........	100.0
1906..........	61.8	1927..........	95.4
1907..........	65.2	1928..........	96.7
1908..........	62.9	1929..........	95.3
1909..........	67.6	1930..........	86.4
1910..........	70.4	1931..........	73.0
1911..........	64.9	1932..........	64.9
1912..........	69.1	1933..........	66.0
1913..........	69.8	1934..........	75.0
1914..........	68.1	1935..........	80.0
1915..........	69.5	1936..........	80.8
1916..........	85.5	1937..........	86.3
1917..........	117.5	1938..........	78.6
1918..........	131.3	1939..........	77.1
1919..........	138.6	1940..........	78.6
1920..........	154.4	1941..........	87.3
1921..........	97.6	1942..........	98.8
1922..........	96.7	1943..........	103.2
1923..........	100.6	1944..........	104.0
1924..........	98.1	1945..........	*105.2

* September figure.

LABOR CONDITIONS

With respect to labor conditions, using October as the basis (latest date furnished by the *Federal Reserve Bulletin*), 1945 employment shows large decreases along nearly all important lines as compared with the same month of 1944. For iron and steel products, the decrease extended from 168.6 for October, 1944, to 120.5 for October, 1945; for electrical machinery during the same period from 281 to 171.2; machinery (except electrical) from 222.9 to 167.9; transportation equipment (except automotive) from 1,370.3 to 404.2; automobiles from 170.2 to 114.7; nonferrous metals from 176.3 to 134; and lumber and timber and basic products from 113.4 to 91.8. In only two cases, as reported by the *Federal Reserve Bulletin*, was the decrease moderate, namely, in furniture and lumber products where the decrease from October, 1944, to October, 1945, extended only from 102.7 to 90.1, and stone, clay and glass, with a decrease from 110.9 to 107.1. For durable goods taken as a whole, the employment figure shows a decline from 221 to 136.6, and for non-durable goods a decline from 119.2 to 109.7.

With respect to payrolls, large changes are also shown in nearly all

FACTORY EMPLOYMENT AND PAYROLLS

	Employment						Payrolls		
	Adjusted for Seasonal Variation			Unadjusted for Seasonal Variation			Unadjusted Seasonal Variation		
	Oct. 1945	Oct. 1944	Oct. 1943	Oct. 1945	Oct. 1944	Oct. 1943	Sept. 1945	Oct. 1944	Oct. 1943
Durable Goods									
Iron and Steel				120.5	168.6	174.6	200.9	318.0	318.6
Electrical Machinery				171.2	281.0	283.4	273.4	512.5	494.7
Machinery, except Electrical				167.9	222.9	237.6	274.6	424.7	441.4
Transportation Equipment, except Automotive				404.2	1,370.3	1,464.3	818.4	2,964.8	2,947.6
Automobiles				114.7	170.2	186.7	150.5	313.1	359.5
Nonferrous Metals				134.0	176.3	184.3	220.2	337.3	338.2
Lumber and Timber Basic Products				91.8	113.4	110.2	184.8	219.2	200.9
Furniture and Lumber Products				90.1	102.7	109.4	157.5	193.0	191.0
Stone, Clay and Glass				107.1	110.9	119.3	176.8	192.1	194.0
*Total of Durable Goods	p 136.4	220.8	232.2	136.6	221.0	232.3	238.7	462.9	468.8
Nondurable Goods									
Textile Mill and Fiber Products				90.3	95.0	103.8	166.7	172.8	174.4
Apparel and Other Finished Textiles				100.5	110.9	104.6	180.3	200.4	164.1
Leather Products				87.8	89.9	90.5	157.2	160.1	143.2
Food Products				127.4	131.8	122.3	218.5	209.8	182.2
Tobacco Products				93.4	89.2	95.5	174.8	165.7	160.2
Paper and Allied Products				118.6	117.2	118.0	195.5	196.3	183.0
Printing and Publishing				101.1	98.7	102.6	147.7	136.7	131.0
Chemical and Allied Products				154.0	208.6	256.9	267.6	364.4	437.6
Products of Petroleum and Coal				127.8	124.9	119.3	209.4	224.2	197.7
Rubber Products				143.2	160.2	161.3	232.4	293.3	278.0
Miscellaneous Industries				131.8	168.4	166.0	227.7	327.5	301.3
*Total Nondurable Goods	p 108.6	118.0	121.1	109.7	119.2	121.7	193.2	210.0	199.6

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* Under "Adjusted for Seasonal Variation," only totals are furnished, instead of figures for individual industries.

Source: *Federal Reserve Bulletin*, December, 1945.

of the leading industries, according to the payroll index furnished by the *Federal Reserve Bulletin.* The leading declines from October, 1944, to September, 1945, are as follows: iron and steel and products from 318 to 200.9; electrical machinery from 512.5 to 273.4; machinery (except electrical) from 424.7 to 274.6; transportation equipment (except automotive) from 2,964.8 to 818.4; automobiles from 313.1 to 150.5; nonferrous metals from 337.3 to 220.2; and lumber and timber and basic products from 219.2 to 184.8. For durable goods taken as a whole, the payroll figure shows a decline (October, 1944, to September, 1945) from 462.9 to 238.7, and for non-durable goods a decline from 210 to 193.2. According to the latest available report of the *Federal Reserve Bulletin,* the 1944 showing for leading types of industries as regards both employment and payrolls is as shown in the preceding table.

THE SECURITY AND MONEY MARKETS

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GENERAL CONDITIONS

Stock market movements during 1945, with respect to both the price level and the volume of transactions, showed a remarkable change from the situation prevailing during recent years. It may be described as a distinctly active bull market.

The average monthly price level, at the end of the first ten months of the year (latest available), showed an appreciation of 22.3 per cent as contrasted with an increase of only 8.2 per cent during the same period of 1944. For the four leading groups of stocks the appreciation for the first ten months of the year was 19.7 per cent for railroad stocks, 21.1 per cent for industrials, 33.9 per cent for public utilities, and 21.1 per cent for copper. The total volume of transactions on the New York Stock Exchange reached the 377,000,000-share figure (44 per cent in excess of the 263,000,000 total for 1944), while transactions on the Curb Market (143,000,000 shares) exceeded those of 1944 by 102 per cent. Million-share days on the New York Exchange were the general rule throughout the year, and during four months of the first ten months of the year the daily average exceeded 1,500,000 shares. This activity compares with about 750,000-share days during 1944.

Using a combined average for all leading groups of stocks (Standard and Poor's Index), the 1945 market was consistently a bull market, with only a single period of minor recession during July and August. The three price trends of the year may be indicated as follows: (1) a rise from January to June of monthly averages, from 107.1 to 119.8, or 11.8 per cent, (2) a minor decline during July from 119.8 to 117.4, or 2 per cent, and (3) a rise from August to October, inclusive, from 117.4 to 131.0, or 12.4 per cent. The total rise from January to October, as already indicated, was 22.3 per cent. At the time of this writing (Dec. 8), current newspaper accounts were stressing the lengthy rally to average 15 year peaks. Impressive as the aforementioned increases are, it should be noted that many of the leading corporate shares experienced a much greater appreciation. Using ten giants for illustrative purposes—Chemical and Dye, American Smelting and Refining, American Telegraph and Telephone, American Tobacco, Bethlehem Steel, Chrysler Corporation, E. I. du Pont de Nemours, General Motors, Standard Oil of New Jersey, and United States Steel—the average high price for 1945 of 121.35 compares with the average closing price on Dec. 30, 1944, of 91.5, or an increase of 33 per cent.

Bonds, using the Standard and

Poor's Index for Corporate Bonds, maintained the unusually high price level reached by the close of 1944, the January 1945 high average being 117.6, and for October 118.1. During the corresponding period for 1944 there was an increase from 113.4 (for January) to 115.9 for October. Comparing October of 1945 with October of 1944, bonds showed a price increase of approximately 1.9 per cent.

Throughout 1945, and especially following the collapse of Germany and later of Japan, the stock market increasingly threw off the cautious hesitation and selectivity which characterized the market during 1944. As the year progressed an ever increasing number of factors was stressed as supporting the bull side of the market. Of these the following seem to command most attention:

(1) A strong undercurrent of inflation thinking. Following the close of hostilities abroad, there occurred an increasing laxness in war controls and an apparent breaking up of the stabilization program. Increasingly it became evident that there must be either a great increase in productive capacity or a ballooning of prices, and opinion seemed to incline progressively to the latter idea. Toward the end of the year inflationary imagination appeared more and more to have the security market within its grip. Outside of the rails, strength was particularly marked in those groups of stocks—steels, coppers and other metals, oils, sugars, etc.—which possess a large inflation protection in the form of owned natural resources.

(2) An enormous pressure of idle funds seeking investment. To an extraordinary degree purchases were outright and thus well protected against adverse market news. Moreover, many holders were inclined not to take unusual profits because of the existing high income tax brackets.

(3) Favorable corporate earnings and increased dividend declarations.

(4) Federal tax legislation reducing corporate taxes materially, and also individual taxes to a lesser degree.

(5) Better prospects for utility shares, as a result of lower taxes for 1946 and a likelihood of more liberal recapitalization plans for the common stockholders.

(6) The prospect, shared by many, of a high post-war boom in business to meet the needs of foreign war-torn nations as well as to fill the greatly depleted backlogs of domestically needed goods, repairs, and new construction.

(7) A feeling, shared very widely, that the termination of war would bring about a program of lower taxation, to stimulate business, and a substantial abolition of price and other economic restrictions.

Among the unfavorable market factors stressed during 1945, the following should be mentioned: (1) a continuation of heavy government deficit spending, and a resulting increased Federal indebtedness; (2) a substantial reaction from tremendous wartime activity, and a halting and uncertain "reconversion" to peace-time; (3) a drift toward inflation with its resulting increase in production costs, and an upward living cost trend with its unfavorable pressure upon the labor outlook; and (4) an enormous increase in the number of industrial strikes throughout the nation. By December the strike situation had reached ominous proportions, with the automotive industry practically paralyzed and with labor unions threatening also to tie up the steel, oil, and electrical industries of the nation.

Strange as it may seem, the stock market completely ignored the aforementioned ominous factors. Throughout the year the rise has been continuous for months without even a "technical correction" of importance. In fact, toward the end of the year, market psychology seemed to incline to an early settlement of existing labor controversies. More and more the inflation and boom psychologies seemed to hold the market in their grip, and all other factors seemed to be brushed aside.

INDUSTRIAL SHARE PRICES

The very substantial extent of the 1945 stock market rise is indicated by the monthly stock averages of the

Standard and Poor's barometer figures for various leading groups of stocks. Fifty representative industrial stocks had an average price of 131.8 for January. Thereafter each succeeding month showed an improvement until the average for June stood at 145.2, an increase of 10.1 per cent. For July there was a minor decline to 141.7, or 2.5 per cent. Following July, however, the monthly average increased to 143.3 for August, 153.7 for September, and to 159.7 for October (latest available). In other words, between July and October the market in this group experienced an appreciation of 12.7 per cent. The October average of 159.7, when compared with the January average of 131.8, shows an increase in the average monthly price level of 21.1 per cent. The year's October average of 159.7 compares with 127.1 for October, 1944; 117.3 for October, 1943; and with reference to approximately the same period (November), 94.1 for 1942; 93.8 for 1941; 106.9 for 1940; 123 for 1939; 129.1 for 1938; 107.8 for 1937; 168 for January, 1937, and 53.5 for the yearly average of 1932, the bottom year of the 1930-36 depression. The 1945 rise in this group of 21.1 per cent for the first ten months compares with a rise for the same period of 1944 of slightly over 8.2 per cent. It is also interesting to note that the October, 1945, average of 159.7 is nearly three times the 1932 yearly average of 53.5.

RAILROAD SHARES

With respect to 20 representative railroad stocks, the monthly price average of the Standard and Poor's barometer figures also showed an almost continuous bull market throughout the year. For January, 1945, the monthly average stood at 49.3. Thereafter the monthly average rose to 50.4 for February, 50.5 for March, 52.5 for April, 54.7 for May, and 58.6 for June. For the first half of the year, therefore, there was an average price appreciation of 18.8 per cent. Following June, the price declined to 56.6 for July, and 53.4 for August, or by a total of 9 per cent. Following August, however, the bull market in rails was resumed and continued with only minor recessions to the end of the year, the average monthly price level standing at 56.2 for September and 59 for October (latest monthly figure available). The October average of 59, when compared with the January average of 49.3, shows an increase of 19.7 per cent. It compares with 42.1 for October, 1944; 37.5 for October, 1943; 29.7 for October, 1942; 27.8 for November, 1941; 30.1 for November, 1940; 33.5 for November, 1939; 31.7 for November, 1938; 33.1 for November, 1937; 47 for January, 1936; and with yearly averages of 36 for 1935; 42.9 for 1934; 39 for 1933; and 26.8 for the bottom depression year of 1932. It is interesting to compare the October, 1945, average of 59 with the 1932 low June monthly average of 15.

PUBLIC UTILITIES

For the public utility group the 1945 average price movement reflected the largest gain for any of the major groups of shares. According to the Standard and Poor's barometer average for 20 representative public utility stocks, the monthly average rose from 57.7 for January to 71.2 for July, an appreciation of 23.4 per cent. During the intervening months averages stood at 61.3 for February, 61.2 for March, 63.5 for April, 66.5 for May and 69.9 for June. Following July, there was a decline to 69.8 for August (2 per cent), the only decline of note for the year. Following August, the bull market in utilities was resumed and continued with only minor recessions to the end of the year, the average for September being 72.9 and for October 77.3. The October average of 77.3, when compared with the January average of 57.7, showed an increase in the utility price level of 33.9 per cent. The October, 1945, average of 77.3 compares with 55.9 for the corresponding month of 1944; 51 for October 1943; 33.7 for October, 1942; 37.9 for November, 1941; 59.8 for November, 1940; 69.5 for November, 1939; 66.4 for November, 1938; 63.3 for November, 1937; 100.9 for January, 1937; 88.4 for January, 1936; and with yearly averages of 62.8 for 1935; 66.5 for 1934; 81.8 for 1933; and 88.7 for 1932.

COPPER SHARES

For a representative list of seven copper stocks, the average monthly price level for 1945 also showed a continuous bull market, with the exception of a single recession during July and August. From January to June the average rose from 91.2 to 97.2, or 6.6 per cent. Thereafter a decline occurred to 94.3 for July and 91.3 for August, a total of 6 per cent. Following August the rise was very substantial—to 99.6 for September and 110.6 for October. The October average of 110.6, when compared with the January average of 91.2, showed an appreciation in this group of 21.1 per cent. The year's October average of 110.6 compares with 82.8 for October, 1944, with 76.2 for September, 1943; and with October averages of 80.9 for 1942 and 82.4 for 1941.

COMBINED AVERAGES

Combining the 90 stocks used by the Standard and Poor's index for railroads, industrials, and public utilities, the average monthly 1945 price level rose from 107.1 for January to 119.8 for June (11.8 per cent appreciation), then declined to 117.4 for July (2 per cent decline), and thereafter rose to 117.7 for August, 125.8 for September, and 131 for October, an appreciation of 12.4 per cent. The October average of 131, when compared with the January average of 107.1, showed an appreciation for the first ten months of the year of 22.3 per cent. This compares with an appreciation of only 8.2 per cent for the same period of 1944. It should also be pointed out that the 1945 October average of 131 compares with 102.5 for the corresponding month of 1944.

TABLE I

SECURITY MARKET PRICES

	Railroads 20 stocks		Industrials 50 stocks		Public Utilities 20 stocks		*Copper 7 stocks		Stocks 90 stocks	
	1944	1945	1944	1945	1944	1945	1944	1945	1944	1945
January	32.3	49.3	117.4	131.8	50.2	57.7	75.2	91.2	94.1	107.1
February	39.2	50.4	115.8	135.8	50.5	61.3	74.1	94.9	93.5	110.7
March	40.4	50.5	119.0	135.8	51.8	61.2	76.3	92.7	96.1	110.6
April	39.8	52.5	117.1	138.8	50.8	63.5	74.6	95.0	94.4	113.4
May	40.2	54.7	119.4	143.9	51.0	66.5	75.2	95.9	96.1	117.7
June	41.2	58.6	125.3	145.2	52.9	69.9	76.3	97.2	100.6	119.8
July	42.7	56.6	128.5	141.7	54.3	71.2	80.2	94.3	103.2	117.4
August	41.7	53.4	126.2	143.3	55.4	69.8	77.7	91.3	101.8	117.7
September	40.3	56.2	124.2	153.7	54.6	72.9	77.5	99.6	100.0	125.8
October	42.1	59.0	127.1	159.7	55.9	77.3	82.8	110.6	102.5	131.0
November	42.7		126.2		54.9		82.0		101.8	
December	46.6		128.5		55.1		84.8		104.0	

* Copper figures use 1935–1939 as a base period. All other figures use 1926 as a base period. The above figures are an average for the month based on daily closing prices, except for Copper, which are weekly closing prices.

(Source of data—Standard & Poor's *Trade and Securities, Current Statistics.*)

MARKET VALUE OF SHARES

Using the figures of the New York Stock Exchange, the total value of 1,572,812,000 of listed shares on the New York Stock Exchange stood at $69,560,969,000 at the beginning of November, 1945. This value compares with $53,087,000,000 at the beginning of November, 1944; $45,101,000,000 at the close of November, 1943, and $37,374,000,000 at the close of November, 1942. The year's Nov. 1 value of $69,560,000,000 may also be compared with $37,882,000,000 on Dec. 1, 1941;

$41,848,000,000 at the same date in 1940; $45,500,000,000 in 1939; $46,081,000,000 in 1938; $40,716,000,000 in 1937; and with $62,618,000,000 for March of 1937, the high mark before the bear market of 1937-38 began its course.

MONTHLY STOCK AVERAGES

The average monthly "All Stock Price Index" as furnished by the New York Stock Exchange, stood at 80.2 for Nov. 1, 1945, as compared with 69.7 for November, 1944; 59.8 for November, 1943; 50.6 for November, 1942; 51.6 for November, 1941; 57 for November, 1940; 63.2 for November, 1939; and 64.1 for November, 1938. The Nov. 1, 1945, average of 80.2 compares with the following Dec. 1 averages for preceding years: 37.8 for 1937; 56.01 for 1936; 45.85 for 1935; 35.59 for 1934; 32.78 for 1933, and 25.61 for 1932.

VOLUME OF STOCK TRANSACTIONS

Stock transactions on the New York Stock Exchange during 1945 showed a very much larger volume of sales than was the case during 1944—377,563,575 shares as compared with 263,074,018 shares for 1944, and 278,741,765 shares for 1943. The current year thus indicates a departure from the comparative stock market stagnation that has prevailed since 1938. Only July and August showed total transactions as low as 19,977,000 and 21,714,000 shares. Every other month during the first ten months of the year showed a monthly total in excess of 25,000,000 shares. January, June, and October record the large totals of 38,995,000, 41,310,000, and 35,476,000 shares, respectively. With the exception of July, when the daily average of transactions (excluding Saturdays) was 951,000 shares, the daily average for every month from January to October was well in excess of the million share total. January, February, June, and October showed daily averages in excess of 1,500,000 shares. The 1945 total of 377,563,575 shares compares with 263,074,018 shares for 1944; 278,741,000 for 1943; 125,678,000 for 1942; 170,534,000 for 1941; 207,605,000 for 1940; 262,016,000 for 1939; 297,446.000 for 1938; 409,469,000 for 1937; 810,000,000 for 1930; and 1,125,000,000 for 1929, the highest figure on record.

On the New York Curb Market sales of shares during 1945 also showed a much larger volume (a doubling)

YEARLY TOTALS OF SHARE SALES

1920...	226,640,400	1933...	654,874,210
1921...	172,712,716	1934...	323,871,840
1922...	258,652,519	1935...	381,666,197
1923...	236,115,040	1936...	496,063,099
1924...	281,991,597	1937...	409,468,885
1925...	454,404,733	1938...	297,446,059
1926...	450,845,255	1939...	262,015,799
1927...	576,563,218	1940...	207,605,359
1928...	919,661,825	1941...	170,534,363
1929...	1,124,991,490	1942...	125,677,963
1930...	810,038,161	1943...	278,741,765
1931...	579,921,426	1944...	263,074,018
1932...	425,235,829	1945...	377,563,575

SHARES TRADED ON THE NEW YORK STOCK EXCHANGE

	1945		1944	
	Shares	Daily Average, Excluding Sat.	Shares	Daily Average, Excluding Sat.
January..............	38,995,000	1,632,000	17,811,000	759,000
February..............	32,613,000	1,653,000	17,101,000	804,000
March..............	27,492,000	1,185,000	27,643,000	1,107,000
April..............	28,270,000	1,256,000	13,847,000	653,000
May..............	32,024,000	1,323,000	17,228,000	723,000
June..............	41,310,000	1,759,000	37,713,000	1,590,000
July..............	19,977,000	951,000	28,220,000	1,261,000
August..............	21,714,000	1,034,000	20,753,000	866,000
September..............	25,135,000	1,192,000	15,946,000	729,000
October..............	35,476,000	1,545,000	17,534,000	766,000
November..............	40,406,000	1,923,000	18,019,000	847,000
December..............			31,260,000	1,347,000

than was the case during 1944, namely, 143,337,205 shares, as compared with 71,061,783 shares for 1944, and 71,382,463 shares for 1943. The current year's total of 143,337,205 shares compares with 22,328,000 shares for 1942; 34,691,000 for 1941; 43,000,000 for 1940; 46,000,000 for 1939; 50,000,000 for 1938; 104,000,000 for 1937; 135,000,000 for 1936; 76,000,000 for 1935; 56,000,000 for 1934; 101,000,000 for 1933; 57,000,000 for 1932; 110,000,000 for 1931; 220,000,000 for 1930; and 474,000,000 for 1929, the largest on record.

THE BOND MARKET

Bond sales on the New York Stock Exchange during 1945 indicated a comparatively dull market, and the total was approximately the same as that of 1944, namely, $2,261,985,110, as compared with $2,694,704,000 for 1944; $3,254,716,000 for 1943; $2,313,000,000 for 1942; $2,114,000,000 for 1941; and $1,672,000,000 for 1940.

During 1945, bonds maintained an unusually high and steady price level throughout the year. Using Moody's Bond Prices as a basis (*Commercial and Financial Chronicle*, Nov. 29, 1945) the average for domestic corporation bonds stood at 113.89 at the end of January, 1945. By June 29 the average price had risen to 116.02. Thereafter the average price fluctuated narrowly from month to month until the price stood at 117 on Nov. 27 (the latest available). This compares with 113.12 for the corresponding date of 1944, and 110.52 for 1943. It also compares with high and low averages for 1942 of 107.62 and 106.04, with high and low for 1941 of 108.52 and 105.52, and with high and low for 1940 of 106.74 and 99.04. The Nov. 27, 1945 price is 3.88 points in excess of the price on the corresponding date in 1944. United States Government bonds stood at the high average level of 123.79 on Nov. 27, 1945, compared with high and low for the year of 123.79 and 120.55, and with high and low for 1944 of 120.4 and 119.2; with 120.7 and 116.85 for 1943; 118.41 and 115.9 for 1942; 120.05 and 115.89 for 1941; and 119.63 and 113.02 for 1940.

The extraordinarily high price of bonds brought the average bond yield to very low figures. According to Moody's Bond Yield Average, the average yield for all of the domestic corporation bonds was down to 2.80 per cent on Nov. 27, 1945. However, for choice bonds (the Aaa group) the yield was only 2.61 per cent, as compared with 2.71 per cent a year ago; 2.74 per cent in 1943; 2.82 per cent in 1942; and 2.80 per cent in 1941.

Using the Standard and Poor's barometric averages for a representative group of corporate bonds, the monthly high average stood at 117.6 for January, 1945. Thereafter the price fluctuated slightly from month to month, the monthly high average standing at 117.9 for February, 118.2 for March, 118.3 for April, 118 for May, 118.4 for June, 118.2 for July, 117.6 for August, 117.4 for September, and 118.1 for October, the latest available. The year thus shows a remarkably stable bond market at an unusually high price level. It should also be noted from the accompanying table that the monthly fluctuation between high and low was very small, February being the only month which showed a range between high and low of as much as 0.90 points.

COMPOSITE BOND PRICES FOR 1945

	High	Low
January	117.6	117.0
February	117.9	117.0
March	118.2	117.8
April	118.3	118.1
May	118.0	117.7
June	118.4	117.8
July	118.2	117.5
August	117.6	116.9
September	117.4	116.8
October	118.1	117.3
November	—	—
December	—	—

All bonds listed on the New York Stock Exchange (1,174 issues) showed a total market value of $128,741,461,000 at the beginning of November, 1945. This compares with $101,801,493,000 at the corresponding date in

1944, and with $90,969,000,000 on Dec. 1, 1943, $64,544,000,000 on the corresponding date in 1942, $54,813,000,000 in 1941, and $50,755,000,000 in 1940. The substantial increase in the 1945-1943 figures is largely attributable to the issue of large amounts of United States Government securities during those years. On Nov. 1, 1945, the average price of the aforementioned listed bonds stood at 103.16, which compares with 100.71 at the corresponding date of 1944, and with 99.02 in 1943, 96.11 in 1942, 94.8 in 1941, 93.58 in 1940, 91.24 in 1939, 90.34 in 1938, 92.36 in 1937, 100.55 in 1936, and 81.36 in the bottom depression year of 1932.

THE MONEY MARKET

With respect to both time and call loan rates, the 1945 tendencies represented an exact continuance of the situation prevailing during 1944 and the preceding ten years. As was the case during previous years, in fact as far back as 1933, New York time and call loan rates were quoted at only about 1 per cent or under. Beginning with a January average of 0.75 per cent for four to six months prime commercial paper, and 1 per cent for call loans in New York, the average monthly rate remained fixed at these low figures month after month throughout the year. These average rates are approximately the same as those prevailing during 1944, when the monthly rate on prime commercial paper averaged 0.69 per cent for January to April, inclusive, and 0.75 per cent for the balance of the year. For call loans in New York, the monthly average remained uniformly at 1 per cent for every month of the year.

According to the New York Stock Exchange figures (Nov. 1, 1945), the borrowings of New York Stock Exchange members on collateral security continued to show a small volume. The total of $911,000,000 for Oct. 31, 1945, compares with $878,000,000 for November, 1944; $718,000,000 for the corresponding month of 1943; $342,000,000 for 1942; $436,000,000 for 1941; $362,000,000 for 1940; $336,000,000 for the bottom depression year of 1932; $2,162,000,000 for 1930; and $4,017,000,000 for 1929.

INTEREST RATES

	Commercial Paper		Call Loans	
	4–6 Months		New York Stock Exchange Renewals—Average of Daily Renewal Rates	
	1944	1945	1944	1945
January....	0.69	0.75	1.00	1.00
February...	0.69	0.75	1.00	1.00
March.....	0.69	0.75	1.00	1.00
April......	0.69	0.75	1.00	1.00
May.......	0.75	0.75	1.00	1.00
June.......	0.75	0.75	1.00	1.00
July.......	0.75	0.75	1.00	1.00
August.....	0.75	0.75	1.00	1.00
September .	0.75	0.75	1.00	1.00
October....	0.75	—	1.00	—
November .	0.75	—	1.00	—
December..	0.75	—	1.00	—

Source: Standard & Poor's *Trade and Securities, Current Statistics*, November, 1945.

BANKING AFFAIRS

By Robert W. Bachelor
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GENERAL

Total deposits (exclusive of interbank deposits) in all banks in the United States, and currency outside the banks, rose to $175,000,000,000 at the end of 1945, an increase of $25,000,000,000 during the year, compared with an increase of $28,000,000,000 in 1944 and $23,000,000,000 in 1943. About half of this increase of $25,000,000,000 was in demand deposits of individuals and corporations and currency outside the banks. The other half represented expanded time deposits and deposits of the United States Government. Currency in circulation increased $3,200,000,000 in 1945, compared with approximately $5,000,000,000 in each of the years 1944 and 1943.

Interest rates on government securities and private obligations, and stock yields, declined throughout the year, as a large supply of excess reserves for the banking system was maintained by the Federal Reserve authorities.

Assets of all banks in the United States on June 30, 1945, totaling $163,000,000,000, were almost equally divided between national banks and state chartered banks. Total assets of national banks were $81,800,000,000, and of state-chartered banks, $81,200,000,000. Of this latter group, commercial banks had assets of $65,000,000,000 and mutual savings banks, $16,000,000,000.

RESERVES

Expanding deposits of the banking system required larger reserves. This increase in reserves was made possible chiefly by open market purchases of United States Government securities by the Federal Reserve banks. Excess reserves, which fluctuated around $1,000,000,000, facilitated the making of day-to-day adjustments between banks as deposits were shifted from one bank to another and from one section of the country to another. One billion dollars of excess reserves also was sufficient to maintain an easy money situation in the financial community, as there was always pressure of uninvested funds against the existing interest rate structure. At the year-end, excess reserves totaled $1,500,000,000.

At the close of the year the Federal Reserve banks held $24,000,000,000 of United States Government securities, an increase of $5,400,000,000 during 1945. These purchases enabled member banks to buy $3,200,000,000 of currency to meet public demands and to replenish their own vault supplies; to meet the cancellation of more than $500,000,000 of deposits as gold was withdrawn for earmarking, export, or industrial uses; and to add nearly $2,000,000,000 to legally required reserves, which aggregated $14,400,000,000.

Federal Reserve banks are able to purchase government securities by creating obligations against themselves. Checks issued in payment for securities are drawn upon the purchasing Federal Reserve bank, and can only be deposited in a Federal Reserve bank to increase member or non-member deposits, or taken out in the form of notes. Either form of increased Federal Reserve bank liability requires the same percentage of gold certificate reserve.

On June 12, 1945, legislation was approved which changed the reserve required of Federal Reserve banks from 40 per cent in gold certificates against notes, and 35 per cent in gold certificates or lawful money against deposits, to a minimum of 25 per cent of gold certificates against deposit or note liability. At the time of enactment and subsequently during 1945, the heavy purchases of securities by the Federal Reserve banks, which were required to support the increase in currency in circulation, substantial export of gold, and need for increased commercial bank reserves, had so reduced the ratio of gold certificate reserves to deposit and note liabilities as to leave too small a margin between actual reserves and legal limits. The reserve ratio of Dec. 26, 1945, was 41.9 per cent.

The reduction of reserve requirements to 25 per cent of note and deposit liabilities makes it possible for the Federal Reserve banks to increase the supply of member bank reserves very substantially, at the same time supporting additions to money in circulation, and reductions in the gold stock, if these should be required. It allows an ample margin to enable the banking system to meet all probable needs of the Government for financing. Reserve requirements can always be lowered again if one or more reductions are not sufficient.

The same bill that changed the required reserves of the Federal Reserve banks terminated the authority to issue Federal Reserve bank notes and the authority to issue United States notes under the Thomas amendment of May, 1933.

LOANS AND INVESTMENTS

Total loans of banks were expanded substantially during the war years and in the last six months of 1945. Commercial, industrial, and agricultural loans, and loans for purchasing or carrying United States Government securities, increased in almost equal amounts and accounted for the greater part of the expansion.

Investments of banks in government securities accounted for more than half of the increase in deposits during the war. It is estimated that at the end of September, 1945, commercial banks held $83,500,000,000 of United States Government securities, and mutual savings banks, $10,000,000,000. At that same date, Federal Reserve banks held $23,300,000,000 of these securities.

The expansion of loans during the final months of 1945 was substantial in all lines, as businesses were converted to peacetime operations. In December, the Victory Loan was accompanied by a large expansion of loans for the purpose of purchasing or carrying United States Government securities. Loans for the purpose of purchasing or carrying other securities were small in amount, since war financing took precedence over private issues in early 1945, and most privately-sponsored issues were for refunding outstanding securities rather than to provide new money for industry. Loans for purchasing or carrying other securities were restricted further by action of the Board of Governors of the Federal Reserve System in raising margin requirements for extensions of credit by brokers and dealers on listed securities, under Regulation "T"; and for loans by banks on stocks, under Regulation "V." Effective Feb. 5, 1945, margin requirements for both these types of lenders were raised from 40 per cent to 50 per cent. Effective July 5, 1945, these requirements were increased to 75 per cent margin. Margin for short sales was also increased from 50 per cent to 75 per cent. The margin requirement represents the difference between the market value of the security (100 per cent) and the maximum loan value.

Bankers have cooperated with the Veterans Administration and veterans organizations in working out ways and means of expediting loans to war veterans. Many banks have preferred to make loans to individual veterans without the guarantee of the Government, with its attendant delays and involved procedure.

The number of credit groups organized to extend credit to individuals and businesses whose demands could not be met by their local banks, was increased to 48, with aggregate commitments of $664,827,675. All sections of the United States are covered by one or more groups. This form of organization to supplement local banking resources has been able to meet business requirements for credit.

Banks have indicated their intention of engaging in the active financing of consumers, as greater quantities of consumers' durables reach the market.

Bank rates on customers' loans, for the third quarter of 1945, were reported by the Board of Governors of the Federal Reserve System as 2.45 per cent average for 19 cities, and 2.05 per cent for New York City. All member banks of the Federal Reserve System averaged to earn 3 per cent on loans during the first half of 1945, compared with 3.3 per cent for the corresponding period of 1944.

DEPOSITS

Deposits in all banks in the United States increased $25,000,000,000 during 1945, to $175,000,000,000 at the close of that year. Time and savings deposits increased $10,000,000,000; demand deposits, exclusive of interbank and government deposits, increased about $11,000,000,000; and there were small increases in deposits of the United States Government and of banks.

Demand deposits of individuals, partnerships, and corporations, on

July 31, 1945, amounted to $42,400,000,000. Ownership was estimated as follows:

	(Billions)
Total domestic business	$42.4
Non-financial business—total	37.1
Manufacturing and mining	18.4
Public utilities	4.0
Trade	10.9
Other non-financial	3.8
Financial business—total	5.3
Insurance companies	1.8
Other financial	3.5
Personal	23.0
Farmers	5.2
Other	17.8
Trust funds	1.5
Non-profit associations	2.0
Foreigners—businesses and individuals	.7
Total	$69.6

It is estimated that deposits of domestic business are owned by corporations to the amount of $31,900,000,000, and that unincorporated businesses own $10,600,000,000.

The geographical distribution of the increase in bank deposits generated by government borrowing from the banks followed a pattern quite different from that of pre-war deposit localization.

The greatest rates of deposit expansion took place in centers that had newly established war plants. Generally, the rate of increase was greatest in the south and west, particularly the Pacific Coast area. The percentage increase in deposits in the east and northeast was substantially less than the national average, while the rate of increase in western and southern districts was substantially greater than for the United States as a whole.

Farming sections generally gained deposits, since there was an assured market for agricultural products, while farm equipment was difficult to obtain. Deposits tended to be built up in country banks. The greatest increase in dollar amount of deposits, however, took place in a few metropolitan areas which had large war production.

Notwithstanding the initial abnormal concentration of deposits in certain areas, these funds usually are rather quickly diffused throughout the United States as materials are purchased, loans made and borrowings repaid, and services compensated. At times when the money supply of this country is being expanded, nearly every section shares in the increase.

Capital accounts of all banks in the United States, on June 30, 1945, were $10,152,000,000, or 6.7 per cent of the $151,900,000,000 of deposits of these banks. However, if allowance is made for the $94,200,000,000 of United States Government securities, and $30,900,000,000 of coin, currency, and balances with other banks, including Federal Reserve banks, the ratio of capital to deposits, less riskless assets, amounts to more than 60 per cent. This ratio represents one of the highest coverages in banking history. Most of the expansion of bank credit during the war years was based on United States Government securities.

Several large banks floated new issues of stock during 1945, but bank stocks have not been regarded as attractive investments, since dividends paid for the years 1942-1945 have averaged only 3.2 per cent of capital employed in the commercial banking business. Rates of earnings have been substantially higher than dividends paid, but requirements for increasing capital structures would seem to eliminate all possibility of a higher dividend rate for several years.

ASSETS AND LIABILITIES OF ALL BANKS IN THE UNITED STATES

Assets and liabilities of all active banks in the United States and possessions, by classes of banks, at the close of business June 30, 1945, are shown in the table on the next page.

INTERNATIONAL MONETARY AGREEMENTS

The proposals for an international monetary fund and an international bank for reconstruction and development, drawn up at Bretton Woods, New Hampshire, in 1944, occupied

ALL ACTIVE BANKS IN THE UNITED STATES AND POSSESSIONS BY CLASSES

June 30, 1945*

(Reported by the Comptroller of the Currency)

(In thousands of dollars)

	Total All Banks	National Banks	All Banks Other than National	Banks Other than National		
				State (Commercial)†	Mutual Savings	Private
Number of banks	14,587	5,021	9,566	8,993	534	39
ASSETS						
Loans on real estate	$ 8,743,034	$ 2,083,182	$ 6,659,852	$ 2,420,647	$ 4,237,172	$ 2,033
Other loans, including rediscounts and overdrafts	19,349,106	10,305,951	9,043,155	8,925,907	61,552	55,696
Total loans	28,092,140	12,389,133	15,703,007	11,346,554	4,298,724	57,729
U. S. Government securities:						
Direct obligations	94,192,682	47,230,307	46,962,375	37,306,071	9,577,485	78,819
Guaranteed obligations	47,763	25,156	22,607	20,477	2,126	4
Obligations of States and political subdivisions	3,892,484	2,200,505	1,691,979	1,554,959	100,095	36,925
Other bonds, notes and debentures	3,609,496	1,422,677	2,186,819	1,207,789	968,433	10,597
Corporate stocks, including stocks of Federal Reserve banks	530,460	141,256	389,204	224,878	159,670	4,656
Total securities	102,272,885	51,019,901	51,252,984	40,314,174	10,807,809	131,001
Currency and coin	1,649,487	821,290	828,197	749,527	76,513	2,157
Balances with other banks, including reserves balances	29,246,407	16,791,661	12,454,746	11,901,893	505,649	47,204
Bank premises owned, furniture and fixtures	1,041,995	503,793	538,202	437,558	100,145	499
Real estate owned other than bank premises	113,868	12,960	100,908	38,914	61,554	440
Investments and other assets indirectly representing bank premises or other real estate	79,314	45,937	33,377	25,632	7,719	26
Customers' liability on acceptances outstanding	48,037	27,191	20,846	14,239	....	6,607
Other assets	482,846	182,967	299,879	232,761	65,832	1,286
Total assets	163,026,979	81,794,833	81,232,146	65,061,252	15,923,945	246,949

	Total All Banks	National Banks	All Banks Other than National	Banks Other than National		
				State (Commercial)†	Mutual Savings	Private
LIABILITIES						
Demand deposits of individuals, partnerships, and corporations	$ 66,709,190	$37,126,500	$29,582,690	$29,437,195	$ 8,047	$137,448
Time deposits of individuals, partnerships and corporations	41,347,701	14,315,450	27,032,251	12,626,846	14,384,428	20,977
U. S. Government and postal savings deposits	24,543,584	13,210,056	11,333,528	11,331,912	1,366	250
Deposits of States and political subdivisions	5,441,597	3,153,723	2,287,874	2,284,655	1,138	2,081
Deposits of banks	12,626,462	8,251,954	4,374,508	4,321,151	310	53,047
Other deposits (certified and cashiers' checks, etc.)	1,264,157	767,854	496,303	494,325	512	1,466
Total deposits	151,932,691	76,825,537	75,107,154	60,496,084	14,395,801	215,269
Bills payable, rediscounts, and other liabilities for borrowed money	81,075	5,209	75,866	73,096	1,000	1,770
Acceptances executed by or for account of reporting banks	56,330	31,776	24,554	17,516	....	7,038
Other liabilities	804,912	459,758	345,154	289,907	54,736	511
Total liabilities	152,875,008	77,322,280	75,552,728	60,876,603	14,451,537	224,588
CAPITAL ACCOUNTS						
Capital notes and debentures	$ 78,762	$	$ 78,762	$ 74,051	$ 4,711	$ .....
Preferred stock	186,014	79,656	106,358	106,358	....	.....
Common stock	2,853,340	1,544,528	1,308,812	1,302,405	....	6,407
Surplus	4,661,967	1,875,277	2,786,690	1,757,844	1,016,596	12,250
Undivided profits	1,759,473	692,146	1,067,327	651,554	415,302	471
Reserves (and retirement account for preferred stock and capital notes and debentures)	612,415	280,946	331,469	292,437	35,799	3,233
Total capital accounts	10,151,971	4,472,553	5,679,418	4,184,649	1,472,408	22,361
Total liabilities and capital accounts	163,026,979	81,794,833	81,232,146	65,061,252	15,923,945	246,949

* Excludes banks in the Philippines on account of the war.
† Includes trust companies and stock savings banks.

the attention of the public and the Congress during 1945.

The American Bankers Association approved the objectives of the Bretton Woods program in general and the proposal for the International Bank for Reconstruction and Development in particular, but pointed out a number of serious dangers or inadequacies in the Fund as projected and proposed definite methods by which the plan could be revised so as to remove or lessen the dangers without sacrificing the major objectives or imperiling its acceptance by other countries.

Officers of the Association appeared before the Banking and Currency Committee of the House of Representatives and made the following recommendations:

1. That the capital funds of the Export-Import Bank be increased to $2,000,000,000, first, to provide means for meeting promptly deserving credit needs prior to the setting up of an international bank, and second, to enable the United States to make loans in which this country has special interest and which can be made more effectively through a national institution than through an international body.

2. That the Johnson Act and any analogous provisions in the Neutrality Act now standing in the way of private loans to certain foreign countries be repealed.

3. That the Bretton Woods plan for an International Bank for Reconstruction and Development be adopted, but with the following suggested changes: (a) that the two paragraphs in the Bank agreement which make membership in the Bank dependent on membership in the Fund be deleted; (b) that an article be added placing on the governors and directors of the Bank responsibility for arranging and negotiating agreements between the member countries with respect to the stabilization of currencies, removal of exchange controls as rapidly as practicable, and general rules of procedure for carrying out monetary policies; (c) that the Bank be authorized to collect information with respect to monetary and economic matters as outlined in the Monetary Fund proposal; (d) that the lending powers of the Bank be broadened sufficiently to allow it to make loans, under the same safeguards as the other loans of the Bank, for the purpose of aiding countries in stabilizing their currencies; and (e) that a Council be set up in the Government of the United States to supervise foreign lending policies.

The bill was passed by the Senate on July 19, 1945, and was approved by the President. Foreign governments for the most part did not ratify the agreements until December. France devalued her currency before participation, and the United Kingdom completed negotiations for a loan of $3,750,000,000, in addition to an obligation for $650,000,000 for surplus property and installations located in the United Kingdom. Those who opposed the precise form of the Bretton Woods agreements as originally published, had long contended that the relationships of the "key currencies," especially means for stabilizing the dollar-pound sterling balance of payments, should be settled before the international monetary fund and international bank could function in the manner intended by the agreements. This major problem in world finance was well advanced toward settlement at the close of the year when the Bretton Woods agreements were signed by the principal commercial powers, exclusive of Russia.

AMERICAN BANKERS ASSOCIATION

The American Bankers Association, the national organization of banking, includes in its membership 15,500 of the 16,000 state commercial, national, savings banks, and trust companies and other eligible institutions.

It was not feasible to hold a convention or meeting of the Executive Council during the year. At the meetings of the Administrative Committee, the following resolutions and policies were approved:

1. Resolutions by the Consumer

Credit Committee were approved to the effect that the restrictions imposed by Regulation "W" should be gradually relaxed in relation to the production of consumers' durable goods.

2. The principle of permitting national banks to make real estate loans to veterans of higher ratio to appraised value of property and for longer terms than heretofore, was approved. A broadening of the law with respect to other borrowers was also approved.

3. Extension of reciprocal trade agreements was approved in principle.

4. The action of the officers and the Advisory Committee on Special Activities in presenting to Congress and the public the Association's views on the Bretton Woods proposals, was ratified and approved.

5. The declaration by the Association on Sept. 15, 1943, that direct commercial loans by the government or governmental guaranties of commercial loans are not only unnecessary for the financing of post-war commercial enterprise, but are actually contrary to sound financial policy and the best interests of the American economy, was reaffirmed.

The Committee on Federal Legislation was directed to prepare such amendment or amendments to 12 U.S.C. Section 24 as may be necessary to permit national banks to purchase domestic "open" accounts receivable and submit the same to the Administrative Committee or Interim Committee for approval.

It was determined that the Association should endeavor to have the licensing of banks by the Treasury Department eliminated.

Officers for 1945-1946 were elected as shown below: President—Frank C. Rathje, president, Chicago City Bank and Trust, Chicago 21, Ill.; Vice President—C. W. Bailey, president, First National Bank, Clarksville, Tenn.; Treasurer—S. Albert Phillips, vice president, First National Bank, Louisville 1, Ky.; and Executive Manager—Harold Stonier, New York, N. Y.

TRUST BUSINESS

By Gilbert T. Stephenson

The Graduate School of Banking, American Bankers Association

TRUST DIVISION, AMERICAN BANKERS ASSOCIATION

The 1945-1946 organization of the Trust Division of the American Bankers Association is as follows: President, James W. Allison, vice president, Equitable Trust Company, Wilmington, Del.; Vice President, Evans Woollen Jr., president, Fletcher Trust Company, Indianapolis, Ind.; Chairman of the Executive Committee, R. M. Alton, vice president in charge of trust department, United States National Bank, Portland, Ore.; Secretary, Merle E. Selecman, deputy manager, American Bankers Association; Members of the Executive Committee: Louis S. Headley, president, First Trust Company of St. Paul, St. Paul, Minn.; Henry A. Theis, vice president, Guaranty Trust Company of New York; Chester R. Davis, vice president and trust officer, Chicago Title and Trust Company, Chicago, Ill.; William Hardin Goodman, vice president and trust officer, Florida National Bank, Jacksonville, Fla.; T. Stanley Holland, vice president and trust officer, American Security and Trust Company, Washington, D. C.; Howard C. Lawrence, director, The Michigan Trust Company, Grand Rapids, Mich.; George C. Barclay, vice president, City Bank Farmers Trust Company, New York; H. M. Bardt, vice president and trust officer, Bank of America N.T. & S.A., Los Angeles, Calif.; J. M. Hutchinson, vice president and trust officer, Davenport Bank and Trust Company, Davenport, Ia.; Lee P. Miller, vice president, Citizens Fidelity Bank and Trust Company, Louisville, Ky.; John A. Reid, vice president, The First National Bank of Cincinnati, Cincinnati, O.; John H. Evans, vice president and trust officer, McDowell National Bank, Sharon, Penn.; N. Baxter Maddox, vice president and trust officer, The First National Bank, Atlanta, Ga.; John W. Remington, vice president and trust officer, Lincoln Rochester Trust Company, Rochester, N. Y.; Leo A. Steinhardt, president, International Trust Company, Denver, Col.; and B. Magruder Wingfield, vice president and trust officer, The National Bank of Commerce, Houston, Tex.

On Oct. 16, 1945, Frederick A. Carroll, immediate past-president of the Trust Division, while serving on leave from the National Shawmut Bank of Boston as Red Cross Commissioner for Great Britain and Western Europe, was killed in an automobile accident in France.

TRUST CONFERENCES

Because of wartime restrictions upon travel, the regular annual trust conferences, that is, the Mid-Winter, the Mid-Continent, and the Pacific Coast and Rocky Mountain States Conferences, were not held. However, during the first half of 1945 a series of 12 small conferences—one in each of the Federal Reserve Banks—were conducted with the Federal and state bank supervisory authorities. During the latter part of the year, 17 local conferences were conducted in the states of Virginia, Connecticut, Alabama, Mississippi, and New York, especially designed for smaller trust departments. These conferences for smaller trust departments are to be continued throughout 1946.

TRUST LEGISLATION

During 1945 regular sessions of the legislature were held in 44 states. A summary of the trust legislation adopted follows. Common trust fund enabling acts were adopted in Maryland, New Jersey, and West Virginia, making a total of 26 states now authorizing the establishment of common trust funds. Indiana adopted an intermediate court accounting act, making a total of 15 states having such legislation. Delaware, Maryland, Ohio, Vermont, and West Virginia adopted statutes authorizing the nominee registration and transfer of securities held in trust accounts, making a total of 21 states authorizing nominee registration. Arkansas and Georgia adopted probate codes, making a total of 10 states with such codes. Illinois, Maine, and Texas adopted by statute the Prudent Man Rule for trust investment, making a total of 14 states now operating under the Prudent Man Rule.

Arkansas, Montana, Nebraska, Oklahoma, and South Dakota adopted the reciprocal exemption from multiple inheritance taxation act, making a total of 26 providing for reciprocal exemption and 216 states, including the District of Columbia, granting total exemption. Alabama, California, Colorado, Georgia, Indiana, Michigan, and South Dakota adopted the release of powers of appointment act, making a total of 20 states with such legislation. Minnesota adopted the Uniform Fiduciaries Act, making a total of 20 states which have adopted the act. Pennsylvania, the 14th state, adopted the Uniform Principal and Income Act.

California and Delaware, the 25th and 26th states respectively, adopted the Uniform Simultaneous Death Act. Delaware, District of Columbia, Nevada, Oklahoma, South Carolina, and Wyoming adopted the Uniform Stock Transfer Act, making a total of 45 states which have adopted this act. Arizona, Colorado, Iowa, New Mexico, and Oklahoma adopted the Uniform Veterans' Guardianship Act, making a total of 14 states. Maryland adopted, and so far is the only state which has adopted, the uniform act on interstate compromise of death taxes when domicile is in dispute. From the foregoing it is to be seen that the year 1945 was a notable one for uniform trust legislation.

SMALL ESTATES AND SMALL TRUSTS

The year was characterized also by emphasis by trust institutions upon the acceptability of small estates and trusts. As to small estates, some trust institutions, through advertisements, are offering their services as executor or administrator for estates as small as $1,000; others, as small as $5,000.

Samplings of the probate records in different parts of the country reveal a surprisingly large proportion of very small estates. For example, in one group of 7,340 estates recently settled in six counties in five states, taken in order from the probate records, 56.3 per cent in number were $5,000 or under; of 25,514 estates in 13 counties in seven states, 83.4 per cent were $10,000 or under; and of 28,087 estates in 13 counties in eight states, 93.1 per cent were $25,000 or under. If this is a fair cross section of estates being settled, it shows that over 50 per cent are $5,000 or under; over 80 per cent, $10,000 or under; and over 90 per cent, $25,000 or under.

Not only are more trust institutions publicly expressing willingness to accept small estates for settlement but also they are paying special attention to operating economies that will enable them to settle small estates economically to the beneficiaries and profitably to themselves and to special legislation that will expedite the putting of small estates through probate.

The attitude of trust institutions toward small trusts is shown by the growth of the common trust fund movement. The main, if not the sole, purpose of common trust funds, providing as they do for the collective investment of small funds, is to enable trust institutions to administer small trusts economically and profitably. As already pointed out, 26 states now by statute or decision authorize the establishment of common trust funds by banks and trust companies. At the present time there are known to be 46 funds (not all of them common trust funds in the technical sense) for the collective investment of trust funds in 16 states and in 39 banks and trust companies. At least 12 of these funds in seven states have been established since Sept. 1, 1944. It is known that several other common trust funds are in process of establishment, that is to say, they are being tried out on paper before actual investments are made.

The need for the administration of small trusts by trust institutions is based on the fact that such a surprisingly large proportion of the trusts under administration at the present time are small ones. A 1942 survey of 153,646 private trusts under administration in 1,047 trust institutions showed that 48.81 per cent of these trusts each produced an annual income of less than $750. Capitalized at 3 per cent, this means that nearly one-half of these trusts were less than $25,000 each. A 1943 survey made by the Superintendent of Banks of New York State showed that, in 15 of the largest institutions in New York City, 38.3 per cent of the trusts under will and 28.6 per cent of the living trusts were $25,000 or under, and in 17 of the larger trust institutions in New York State outside New York City 64.5 per cent of the trusts under will and 54.9 per cent of the living trusts each was $25,000 or under.

During 1945 the Board of Governors of the Federal Reserve System made one material change in its regulation of common trust funds in that it raised the limit of the amount of funds of any one trust which may be invested through common trust funds from $25,000 to $50,000. This will permit the wider use of common trust funds for larger trusts.

SERVICEMEN RETURNING TO TRUST WORK

The last quarter of the year was characterized by the return of servicemen to trust work and by the efforts of banks and trust companies to fit them back into their former positions or provide positions more suited to their tastes and abilities in the light of their development and maturity acquired during their years of war service.

This led to a good deal of inquiry

as to a young person's future in the trust business. A study of the monetary return a young person reasonably might expect, if he made good in the trust business, revealed that, on the basis of returns from 516 trustmen representing every state and 153 cities, the average salary of trustmen in the United States is $8,454, as compared with $8,688, the average professional earnings of a selected group of 5,000 physicians. It showed also that the salaries of trustmen compare favorably with the professional earnings of lawyers and with the salaries of chemists and chemical engineers.

While the demand for trustmen is, necessarily, limited—there being only about 3,000 trust departments (including branches) in the United States and only about 7,000 trust officers—the demand will increase as the base of trust business is broadened through the acceptance of smaller estates and smaller trusts. Even now there are attractive openings for young persons who are prepared and determined to make trust business their life work.

FOREIGN EXCHANGE

By MARCUS NADLER

PROFESSOR, NEW YORK UNIVERSITY

INTERNATIONAL MONETARY FUND

The year 1945 was remarkable in many respects. It marked the end of the greatest war in history and the beginning of international cooperation in matters of international banking, foreign exchange as well as foreign trade. The most important development in the field of international finance during the year was the adoption of the Bretton Woods Agreement. Under it two institutions are to be established, namely, the International Monetary Fund and the International Bank for Reconstruction and Development.

From the aspect of foreign exchange the Fund is of far greater importance. The principal provisions relating to foreign exchange may briefly be summarized as follows. A country may depreciate its currency by 10 per cent without the consent of the Board of the Monetary Fund. Any depreciation beyond 10 per cent will need the consent of the Monetary Fund which will be given only if the applicant can prove that it is absolutely essential to prevent a disequilibrium. Through the Fund, central banks or other agencies of the Government will be in a position to obtain short-term foreign credits and tide themselves over periods when their international balance of payments is maladjusted. If ratified, it will establish for the first time in history an organization which will supervise the international financial transactions of central banks and prevent the adoption of measures which might prove helpful to an individual country but harmful to other nations. Under the agreement, all members also agree to remove their foreign exchange restrictions on current transactions within three to five years. Such restrictions on capital transactions will remain in force for some time to come.

Hence if the Bretton Woods Agreement is ratified there are reasons to believe that machinery will be set up to avoid currency wars, undue fluctuations of currencies, and facilities established to enable countries to meet temporary deficits in their balance of payments. The International Bank for Reconstruction and Development is intended to provide countries with capital to restore their economies or to develop their natural resources.

THE ANGLO-AMERICAN AGREEMENT

From the beginning it was apparent that the British would not be able under existing conditions to ratify the

Bretton Woods Agreement and to undertake the obligations imposed on members unless a substantial credit were received from the United States. Toward the end of the year an agreement was reached between the two countries which provides, among other things, that all lend-lease transactions carried out prior to V-J Day were cancelled. The American Government extended a credit of $650,000,000 to the British Government to enable the latter to pay for all lend-lease shipments to Great Britain after V-J Day and for the purchase of American surplus products in Britain as well as for American interests in installations. The $650,000,000 will, therefore, liquidate all obligations incurred by Great Britain in the United States during the war.

Of greater significance was a line of credit granted by the United States to Great Britain. This credit is to take effect as soon as the agreement has been ratified, and it is to be used up to the end of 1951. The credit is to be repaid over a period of 50 years beginning with 1951 at a 2 per cent interest rate, payable also beginning with the end of 1951. The purposes of the credit are to enable Great Britain (a) to buy goods in the United States, (b) to buy goods in countries other than the United States, (c) to accumulate gold and dollar balances, and (d) to be able to return to multilateral trade. The British Government agreed that, within one year after the agreement has gone into effect, unless postponed by mutual agreement, all sterling exchange as well as dollars accruing to members of the sterling area from current transactions will be freely convertible into any currency desired by the owner. The British also agreed to remove, within one year after the effective date of the agreement, foreign exchange restrictions on exports from the United States.

Hence, if the agreement is ratified, the wide sterling area will be opened to American trade and ought to have a favorable effect on exports from this country to that area. Furthermore, the credit granted to Great Britain assures that the pound will not be depreciated and that the present rate may be maintained for some time. These were the principal developments in the field of international finance during 1945.

CURRENCY REFORMS IN EUROPE

After the liberation of France, Holland, and Belgium, the governments of the respective countries took measures to reduce the volume of currency in circulation and deposits which had greatly increased during the period of occupation. Old currency was converted into new, and a substantial portion of the deposits was also blocked. The purposes of these measures were as follows: (1) to reduce the volume of the medium of exchange and thus to fight the forces of inflation which were very pronounced; (2) to catch all those who have profited from collaboration with the enemy as well as those who have profited from black market operations and those who did not pay taxes during the period of occupation.

In all three countries the rate of exchange of the individual currencies in turn was lowered. In Holland, for example, the monetary agreement of Sept. 7, 1945 with Great Britain fixed the rate of exchange at 10.691 florins to the pound sterling, or about 37.4 United States cents, as compared with 53.3 cents in 1939. In Belgium the rate of exchange was fixed at 176.625 francs to the pound, or 2.26 United States cents, as compared with 3.37 cents in 1939. The exchange rate of the French franc is still greatly overvalued, and a depreciation is to be expected in the not distant future. At the present rate the French economy is not able to compete in foreign markets. Whether the currencies of other continental European countries will be further depreciated or devalued is not yet clear.

FINANCIAL AGREEMENTS BETWEEN GREAT BRITAIN AND BELGIUM

Other events of considerable importance in the foreign exchange market were the various agreements made between the British Government and a number of European countries such as Belgium, Holland, Sweden, and others.

The agreement with Belgium, which was the basis for the other agreements, provides that the official rate of the pound is fixed at 176.625 Belgian francs which rate may be changed only after mutual consultation. It also provides that the bank of England shall sell sterling to the National Bank of Belgium in order to enable residents of the Belgian monetary area to make payments (under the exchange regulations in force in that area) to residents of the sterling area. The Belgian francs received by the National Bank of Belgium are credited on its books at the official rate of exchange to account No. 1 of the Bank of England. The balance standing to the credit of that account is not to exceed Belgian francs 883,125,000. If the balance exceeds this amount, the Belgian National Bank is to earmark gold for the difference to the account of the Bank of England.

Similarly, the National Bank of Belgium is to sell Belgian francs to the Bank of England in order to enable residents of the sterling area to make payments (under the exchange regulations in force in that area) to residents of the Belgian monetary area. The pounds received by the Bank of England shall be credited on its books to account No. 1 of the Bank of Belgium up to an amount of £5,000,000 plus such additional sum as the contracting governments shall have agreed to recognize as equivalent to the net amount of sterling owned by residents of the Belgian monetary area at the date on which this agreement enters into force. If the balance exceeds this amount, the Bank of England is to earmark gold for account of the Belgian National Bank. The gold earmarked by one central bank for account of the other is at the free disposal of its owner and may be exported.

Residents of the Belgian monetary area may use their sterling balances for making (a) transfers to other residents of the Belgian monetary area; (b) payments to residents of the sterling area; or (c) transfers to residents of countries outside the Belgian monetary area and the sterling area to the extent to which these may be authorized by the Government of the United Kingdom under the arrangements contemplated in Article 8 (iii). Similarly, residents of the sterling area may use their Belgian franc balances.

Article 8 (iii), referred to above, provides that, as opportunity offers, the Contracting Governments shall seek with the consent of the other interested parties: (a) To make Belgian francs at the disposal of residents of the sterling area and sterling at the disposal of residents of the Belgian monetary area available for payments of a current nature to residents of countries outside the sterling area and the Belgian monetary area; and (b) to enable residents of countries outside the sterling area and the Belgian monetary area to use sterling at their disposal to make payments of a current nature to residents of the Belgian monetary area, and to use Belgian francs at their disposal to make payments of a current nature to residents of the sterling area.

To the extent to which the National Bank of Belgium requires sterling area currencies, other than sterling, for the purpose of providing for payments in the countries where such currencies are legal tender, the National Bank of Belgium shall purchase them through the Bank of England against payment in sterling.

To the extent to which the Bank of England requires Congolese francs for the purpose of providing for payments in the Belgian Congo and the Mandated Territory of Ruanda Urundi, the Bank of England shall purchase them through the National Bank of Belgium against payment in Belgian francs.

The two governments agree to prevent capital transfers which serve no useful economic and commercial purpose.

Sterling held by the National Bank of Belgium and Belgian francs held by the Bank of England can be invested only as agreed between the two institutions.

The agreement is for three years, but can be rescinded at any time after a month's notice. It may be revised if the two governments should adhere to a general international monetary agreement.

The Belgian monetary area is defined as embracing Belgium, Luxembourg, Belgian Congo, and Mandated Territory of Ruanda Urundi.

BRITISH-SWEDISH AGREEMENT

The Monetary Agreement entered into by Great Britain and Sweden is technically similar to that concluded with Belgium. It also applies to the entire sterling area "which shall have the meaning from time to time assigned to it by the exchange control regulations in force in the United Kingdom". The principal differences are: (1) No upper limit has been set to the amounts of sterling and Swedish kronor balances which the Riksbank and the Bank of England, respectively, may hold; (2) the established rate of £1 = 16.90 Swedish kronor may not be changed by either government, except after giving the other as much notice as may be practicable; (3) the agreement is for a period of five years from Jan. 1, 1945, on which date it is considered to have become effective, and may be terminated by either government upon three months' notice.

ANGLO-FRENCH AGREEMENT

The Anglo-French financial agreement applies to the sterling area and franc area. The latter comprises Metropolitan France, including Corsica and Algeria, French West Africa, French Equatorial Africa, Madagascar and its dependencies, Reunion, French Somali Coast, French Guiana, Guadeloupe, Martinique, St. Pierre and Miquelon, French Establishments in India, Indo-China, New Caledonia, French Establishments in Oceania, the Condominium of the New Hebrides, the Protectorates of Morocco and Tunisia, the French Mandated Territories of Cameroon and Togo, Syria, and Lebanon. The agreement contains most of the provisions embodied in the monetary agreements with Belgium and Sweden and is intended to facilitate the resumption of more normal commercial relations between the sterling area and franc area. The official rate of £1 = 200 French francs may be altered only after mutual consultation. The main purpose of the agreement, however, is to settle the numerous financial claims that have arisen between the two governments since the outbreak of the war.

LATIN AMERICAN EXCHANGE MARKETS

In the Western Hemisphere the foreign exchange markets were very quiet. Throughout the year most of the Latin American countries had favorable balances of payments and they were thus able to accumulate substantial amounts of gold and foreign exchange. The following table taken from the December 1945 issue of the *Monthly Review of Credit and Business Conditions,* published by the Federal Reserve Bank of New York, shows the increase in the monetary stock of gold of some of the Latin American countries:

The currencies of these countries remained stable throughout the year, and their governments are in a position to maintain the stability of their currencies for an indefinite period of time irrespective of their balance of payments.

CURRENCY CONDITIONS IN CONTINENTAL EUROPE

On the Continent of Europe and particularly in Germany, Hungary, Austria, and Poland, the currencies deteriorated materially during 1945. Inflation became widespread, and in many countries the currencies lost their purchasing power, and currency is used only for purchases of rationed commodities. Most other transactions are carried out through barter. In fact, the situation in Europe has reached the point where one may speak of a cigarette standard. The cigarette has replaced money as the principal internal medium of exchange and has also become an important store and standard of value.

Currency conditions in the countries

X. BUSINESS AND FINANCE

(In Millions of Dollars)

Country	Aug. 1939	June 1941	Aug. 1945	Change	
				Aug. 1939 to Aug. 1945	June 1941 to Aug. 1945
Estimated total Latin America	710	845	2,700	+1,990	+1,855
Argentina	431	(*)	1,111[b]	+680	+ —
Bolivia	4	4	17	+13	+13
Brazil	35	62	352	+317	+290
Chile	30	30	59	+29	+29
Colombia	20	18	104	+84	+86
Ecuador	4	5	21	+17	+16
El Salvador	7	7	13	+6	+6
Guatemala	8	11	28	+20	+17
Mexico	29	59	255	+226	+196
Peru	20	20	28	+8	+8
Uruguay	68	108	189	+121	+81
Venezuela	52	40	186	+134	+146

* Published figure for total gold reserves not available.

[b] December 1944.

mentioned above are worse today than they were at the end of the First World War. At that time the problem was primarily a question of balancing the budget and of obtaining credits abroad after which the currency could be stabilized and put on a sound basis. In Germany for instance there was no central government in 1945 after the surrender. The volume of currency in circulation is being rapidly increased by the armies of occupation. The fiscal system has collapsed entirely, and the principal revenue is the printing press. Furthermore, destruction wrought during this war was much heavier than ever before and hence the reconstruction of the economies as well as of agriculture will be much more difficult than ever before.

How the currencies will be stabilized is as yet impossible to predict. Before the stabilization of the currency can be approached, it will be necessary first to establish efficient governments with authority to levy taxes and to collect them; second, to reactivate industry and to make civilian goods available for consumption; third, to increase the production of agriculture and of minerals, particularly coal.

Even after these measures have been achieved it will be necessary to obtain a substantial credit from abroad in order to bolster up the confidence of the people in their currency. In all likelihood currency conditions on the Continent of Europe will further deteriorate in the first half of 1946, and some of these currencies may lose their purchasing power entirely and ultimately be replaced by a new type of currency.

SUMMARY

The most encouraging aspects in the field of international banking and exchange are the various agreements made among nations, outstanding of which are the Bretton Woods Agreement, the Anglo-American Agreement as well as the monetary arrangements concluded between Great Britain and various countries. These measures were intended to prevent currency wars and to restore sound currency conditions throughout many parts of the world. While the exchange situation has improved materially in some of the western European countries, that on the Continent and particularly in former enemy countries has deteriorated. Currency inflation has proceeded to such an extent that under present conditions no solution can be found except through the complete wiping out of the existing currency and its replacement by a new one.

FOREIGN TRADE

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GENERAL

The end of hostilities in Europe and in the Pacific resulted in lifting the ban of secrecy on United States foreign trade data that prevailed during the war. The Government now issues statistics currently revealing the amount and commodity character of exports and imports and also provides details of the trade carried on in war years. This review, therefore, presents more complete information on United States foreign trade than do other recent annual reviews. Tables presenting statistics of trade in war and immediate pre-war years form the basis of the discussion.

TOTAL TRADE VALUE

The foreign trade of the United States showed a decline of one-third in export shipments in 1945 from a record high of the preceding year. Military exports began to recede even before VE-Day, and a gradual liquidation of all classes of lend-lease goods proceeded throughout the year. Exports, therefore, although showing increases in cash and relief supplies, dropped to a value of $9,806,000,000 from $14,257,000,000 in 1944 (Table 1). They also fell considerably lower than those of 1943, but apart from these two years exceeded all earlier annual totals, including the high value of 1920.

The export trade of 1945, as in other recent years, consisted to a large extent of lend-lease supplies. However, these accounted for less than three-fifths of total exports in that year as compared with four-fifths in the preceding two years. Military equipment lend-leased to the Allied Nations, averaging $450,000,000 monthly in 1944 and $270,000,000 in the first five months of 1945, dropped sharply following VE-Day, and after VJ-Day became negligible. Other lend-lease goods, showing a more moderate decrease, fell in September to approximately three-tenths the May amount and remained relatively small in succeeding months through December. Total lend-lease shipments for the year aggregated $5,562,000,000, less than half the value of the preceding year, when they reached a high of $11,306,000,000. Value of lend-lease shipments and the proportion they constituted of total exports in each year after 1940 are shown in Table 5.[1]

Exports other than lend-lease showed a substantial increase in 1945 as lend-lease shipments dropped, but since cash exports constituted approximately two-fifths of total exports, their gain was overshadowed by the decline in lend-lease goods. Non-lend-lease exports, rising by 44 per cent over the 1944 total, amounted to $4,244,000,000, the highest value for any year after 1941, when shipments of military goods to the British Empire on pre-lend-lease order were still substantial. Marked gains in cash purchases accounted for three-fourths of the rise, and the remainder consisted of shipments made by UNRRA and private relief agencies, which increased from a value of $120,000,000 in 1944 to $480,000,000 in 1945.

Imports into the United States, valued at $4,136,000,000, showed an increase of 5 per cent, a smaller gain than in the preceding year. This

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[1] Trade statistics class lend-lease shipments as exports after March 1941, when the lend-lease program began to function. Though this program officially ceased to operate at the end of the war, it was not possible immediately to stop the flow of supplies arranged for under lend-lease procurement facilities. Supplies in transit or on order and urgently needed for reconstruction are therefore shown as lend-lease exports through the final months of 1945, although the recipient nations arranged to finance them. Equipment and supplies sent to United States armed forces abroad, though of the same character as lend-lease goods, are not classed as exports in foreign-trade statistics.

TABLE 1

UNITED STATES MERCHANDISE EXPORTS AND IMPORTS [1] AND BALANCE OF TRADE

(Value in millions of dollars. Data through 1915 are for fiscal years ended June 30; other data are for calendar years. Coverage of lend-lease and cash exports during war years is explained in Table 4.)

Yearly Average or Year	Merchandise			Excess of Exports (+) or Imports (−)			
					Gold		
	Exports	Imports	Imports as Percentage of Exports	Merchandise	Without Adjustment	Adjusted[2]	Silver
1910–14	2,166	1,689	78.0	+477	+17	+17	+20
1911–15	2,371	1,712	72.2	+658	−3	−3	+23
1915–20[3]	6,521	3,358	51.5	+3,163	−149	−145	+79
1921–25	4,397	3,450	78.5	+947	−265	−266	+10
1926–30	4,777	4,033	84.4	+744	−33	−8	+19
1931–35	2,025	1,713	84.6	+312	−480	−508	−94
1936–38	2,967	2,489	83.9	+478	−1,559	−1,357	−158
1936	2,456	2,423	98.6	+33	−1,117	−1,147	−171
1937	3,349	3,084	92.1	+265	−1,586	−1,271	−80
1938	3,094	1,960	63.4	+1,134	−1,974	−1,658	−223
1939	3,177	2,318	73.0	+859	−3,574	−3,018	−71
1940	4,021	2,625	65.3	+1,396	−4,744	−4,100	−55
1941, total	5,147	3,345	65.0	+1,802	−982	−575	−41
Lend-lease	739	—	—	—	—	—	—
Cash	4,408	3,345	75.9	+1,063	−982	−575	−41
1942, total	8,080	2,745	34.0	+5,335	−316	+143	−39
Lend-lease	4,933	—	—	—	—	—	—
Cash	3,147	2,745	87.2	+402	−316	+143	−39
1943, total	12,964	3,382	26.1	+9,582	−69	+735	+3
Lend-lease	10,358	—	—	—	—	—	—
Cash	2,607	3,382	129.7	−775	−69	+735	−26[4]
1944, total	14,257	3,921	27.5	+10,336	+845	+1,306	+104
Lend-lease	11,306	—	—	—	—	—	—
Cash	2,952	3,921	132.8	−969	+845	+1,306	−18[4]
1945, total	9,806	4,136	42.2	+5,670	+144	+506	+64
Lend-lease	5,562	—	—	—	—	—	—
Cash	4,244	4,136	97.4	+108	+144	+506	−22[4]

[1] Exports, including re-exports, and general imports.

[2] Physical movements of gold are adjusted to include changes in gold earmarked in the United States for foreign account and in gold earmarked abroad for United States account. Gold is valued at $20.67 per fine ounce through January 1934 and at $35 thereafter.

[3] Period July 1, 1915 to December 31, 1920.

[4] Balance excluding lend-lease shipments.

Source: U. S. Department of Commerce.

value, however, represented the highest for imports in any year after 1929. After declining sharply in 1942 as leading sources of supply were cut off and transportation became difficult, the incoming trade showed an almost steady increase through 1945. The expansion was relatively small, however, for the Government, despite its assistance in developing Latin American resources, could not expand importations enough to replace pre-war supplies from Europe and the Far East. Advances represented for the most part larger imports from Western Hemisphere sources, although imports from other non-combat areas registered gains in 1944 and 1945, and trade with continental Europe and the Far East showed some increase, particularly in the latter half of 1945.

QUANTITY AND PRICE

In terms of quantity,[2] total exports

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[2] "Quantity" in the sense here used for purposes of comparison is not synonymous with weight. Changes in quantity have been determined from the calculated index numbers shown in Table 2, which, based on values after elimination of variations in price, take into account the relative importance of each commodity in the trade.

TABLE 2

INDEXES OF CHANGES IN QUANTITY, UNIT VALUE, AND VALUE OF UNITED STATES EXPORTS AND IMPORTS

Year	Quantity	Unit Value	Value
Total exports of U. S. merchandise:[1]			
1936–38	100	100	100
1939	113	95	107
1940	132	102	135
1941	158	109	172
1942	207	132	274
1943	301	146	439
1944	289	167	484
1945	200	164[2]	328
Cash, or non-lend-lease, exports:			
1936–38	100	100	100
1941	135	109	147
1942	83	127	105
1943	63	136	85
1944	69	142	98
1945	96	144[3]	138
Imports:[4]			
1936–38	100	100	100
1939	94	98	92
1940	99	105	103
1941	117	112	131
1942	87	129	113
1943	97	141	138
1944	105	151	158
1945	107	155[5]	166

[1] Includes lend-lease exports from 1941 to 1945, inclusive.

[2] December estimated. The unit value of total exports rose to 171 in the first 8 months of 1945 but declined thereafter as commodity composition shifted from a predominance of lend-lease goods to articles of cash trade.

[3] Partly estimated.

[4] Imports for consumption.

[5] December estimated.

for 1945, cash and lend-lease, though declining 31 per cent from 1944, increased approximately 100 per cent from the average level of pre-war years 1936 to 1938. Cash exports, mounting steadily after 1943, increased approximately 39 per cent from 1944 but fell slightly under their pre-war volume and showed a decrease of 29 per cent as compared with 1941. Imports gained 2 per cent from the quantity of the preceding year and 7 per cent from 1936-38 but stood about 6 per cent and 9 per cent lower than in the high years of 1937 and 1941.

Price advances also contributed considerably to the high value of foreign trade during the war years. The unit value of total exports in 1945, though decreasing slightly from 1944, showed an advance of 64 per cent as compared with the 1936-38 level. Cash exports alone, expanding less in prices of individual items from pre-war than did leading commodities of the lend-lease trade, recorded a more moderate advance of 44 per cent. Imports rose 3 per cent in unit value over 1944 and 55 per cent from pre-war years. The advance for both imports and exports during the war was greatest in 1942 and tapered off thereafter.

Price and quantity indexes, shown in Table 2, measure the influence on value of trade of both price fluctuations and changes in volume.

As compared with the increase in trade during the First World War, a threefold expansion over pre-war years in volume of export trade in 1943 and 1944, the peak years of the Second World War, represented a much greater gain. Available indexes indicate that volume of exports in both these years approximately doubled the peak of the export movement in the First World War. However, the 1945 increase in unit value of exports over pre-war years was much more moderate than the advance recorded during and immediately following the first war. The rise of 71 per cent in the first eight months of 1945 compares with an advance of 110 per cent through 1918 and 159 per cent through 1920 over the pre-war 1911-14 average level. Indexes comparing the expansion of export trade during the First World War and the Second World War may be found in the annual review in THE AMERICAN YEAR BOOK for the year 1944.

RELATION OF IMPORTS AND EXPORTS TO U. S. PRODUCTION

Throughout the years, the United States has maintained self-sufficiency to an extraordinary degree, and during the war met an even smaller proportion of its consumption requirements by means of imports. The Government's ingenuity in developing substitutes to replace imported supplies and in directing distribution of strategic and critical materials nevertheless made possible an extraordinary expansion in production of movable goods in this country during the war. As compared with increases in imports of 58 per cent in 1944 and 66 per cent in 1945 over pre-war years (1936-38), United States production of movable goods more than doubled. The Department of Commerce places production at approximately $44,000,000,000 in 1937, $115,000,000,000 in 1944, and $103,000,000,000 in 1945.

While imports contributed less to national production during the war, the proportion of output exported showed a marked increase. Exportations amounting to 7½ per cent of production in 1937 and 1939 compare with proportionate parts of 12 per cent in 1944 and 9 per cent in 1945. At the peak of lend-lease shipments in the second quarter of 1944, exports represented at least 15 per cent of total production of movable goods.

TABLE 3

UNITED STATES PRODUCTION OF MOVABLE GOODS, VALUE OF EXPORTS, AND THE PROPORTION EXPORTED IN SELECTED YEARS[1]

(Production and exports in billions of dollars)

Year	Production of Movable Goods	Exports	Exports as Percentage of Production
1914	20.2	2.1	10
1919	47.5	7.8	16
1921	33.9	4.4	13
1925	47.2	4.8	10
1927	47.5	4.8	10
1929	53.2	5.2	10
1937	44.0	3.3	7½
1939	41.9	3.1	7½
1941	64.2	5.0	8
1943	113.1	12.8	11
1944	114.8	14.2	12
1945	102.9	9.6	9

[1] The data are from U. S. Department of Commerce *Statistical Abstract of the United States, 1944–45*, p. 525, and later estimates. As the figures are not adjusted for price changes, increases or decreases in absolute values should be disregarded.

These figures, as other statistics quoted in this review, take account only of the merchandise covered in foreign trade. Shipments, including equipment sent to United States armed forces abroad, were much larger. The relation of exports to production throughout the last three decades is shown in Table 3.

COMMODITY COMPOSITION OF EXPORTS

The broad economic classes into which export trade fell during the war years and their relative importance are shown in Table 4. Table 7 lists leading commodities.

Expansion in military goods marked the outstanding change in composition through 1944. This class of exports, consisting of aircraft, ordnance, firearms, ammunition, explosives, and other strictly military items, reached a peak value of $5,600,000,000 in both 1943 and 1944. It advanced to approximately two-fifths of total exports, rising from an average value of $54,000,000 in 1936-38, or less than 2 per cent of the total.

Next to implements of war, other manufactures, mainly commodities necessary to the war effort or essential to civilian economy, formed the most important export group. These articles advanced from an average of $1,378,000,000 in 1936-38 to $5,141,000,000 in 1944. They comprised, however, only 36 per cent of total exports as compared with 47 per cent in pre-war years, a reflection of the greater expansion in military exports. Similarly, exports of semi-manufactures, amounting to $1,096,000,000 in 1944, or double the pre-war value, dropped in proportionate part from 18 per cent to 8 per cent of total exports. Peak values recorded during the war for various manufactured commodities are as follows:

Machinery	$1,478,000,000	1944
Petroleum and products	901,000,000	1944
Automobiles, mainly motortrucks and parts	638,000,000	1944
Iron and steel-mill products	615,000,000	1943
Textile manufactures	496,000,000	1944
Chemicals and related products	403,000,000	1944
Nonferrous metals and manufactures	296,000,000	1944

Foodstuffs, like implements of war, reflected marked adaptation to wartime demands. Valued at approximately $1,766,000,000 in 1944, they amounted to nearly six times pre-war shipments. Foodstuffs formed 12.5 per cent of total exports, as compared with 10.5 per cent in 1936-38. Exports of meats, fats, and milk showed extraordinary expansion, and the group of edible animal products rose from a value of $63,000,000 in pre-war years to $1,296,000,000 in 1944. Exports of grain and other vegetable foodstuffs totaled $467,000,000 in 1944, about double the pre-war figure.

Exports of crude materials declined sharply in the early years of the war and did not regain their pre-war level in any year through 1944. Raw cotton dropped to a value of $83,000,000 in 1941 and unmanufactured tobacco to $65,000,000, or to approximately one-fourth and one-half the average values of the pre-war period (1936-38). European markets for cotton practically disappeared, and tobacco shipments to the United Kingdom dropped by two-fifths. Cotton exports averaged 652,000,000 pounds in 1942 through 1944 and tobacco exports 304,000,000 pounds, as compared with 2,880,000,000 pounds and 450,000,000 pounds in pre-war years. Although exports of coal increased considerably after 1941, mainly in response to the demands of Canadian industry, total exports of crude materials averaged only $545,000,000 in 1942-44, a considerable reduction from the value of $669,000,000

TABLE 4

MERCHANDISE TRADE BY ECONOMIC CLASSES: VALUE AND PERCENTAGE DISTRIBUTION

(Value in millions of dollars)

Yearly Average or Year	Total		Crude Materials		Foodstuffs		Semimanufactures		Finished Manufactures, Except Military		Military Equipment[1]	
	Value	Per Cent	Value	Per Cent	Value	Per Cent	Value	Per Cent	Value	Per Cent	Value	Per Cent
Exports of United States Merchandise												
1936–38 Average..	2,925	100	669	22.9	306	10.5	519	17.7	1,378	47.1	53	1.8
1939.....	3,123	100	545	17.4	313	10.1	599	19.2	1,538	49.2	129	4.1
1940.....	3,934	100	464	11.8	241	6.1	900	22.9	1,931	49.1	399	10.1
1941.....	5,020	100	362	7.2	502	10.0	771	15.4	2,369	47.2	1,015	20.2
1942.....	8,004	100	418	5.2	993	12.4	919	11.5	2,694	33.7	2,980	37.2
1943.....	12,841	100	662	5.2	1,660	12.9	1,090	8.5	3,851	30.0	5,578	43.4
1944.....	14,163	100	554	3.9	1,766	12.5	1,096	7.7	5,141	36.3	5,605	39.6
1945.....	9,589	100	875	9.1	1,678	17.5	782	8.2	4,344	45.3	1,909	19.9
Imports for Consumption												
1936–38 Average..	2,461	100	760	30.9	720	29.2	503	20.4	477	19.4	1	(x)
1939.....	2,276	100	745	32.7	604	26.6	487	21.4	439	19.3	1	(x)
1940.....	2,541	100	1,011	39.8	562	22.1	559	22.0	408	16.1	1	(x)
1941.....	3,222	100	1,376	42.7	698	21.7	724	22.5	422	13.1	1	(x)
1942.....	3,769	100	1,050	37.9	623	22.5	640	23.1	409	14.8	48	1.7
1943.....	3,390	100	1,037	30.6	1,006	29.7	677	20.0	463	13.7	207	6.1
1944.....	3,879	100	1,070	27.6	1,362	35.1	706	18.2	531	13.7	211	5.4
1945.....	4,075	100	1,165	28.6	1,155	28.3	928	22.8	632	15.5	196	4.8

[1] Military equipment includes aircraft, military tanks, explosives, firearms, and other strictly military items.

(x) Less than $500,000.

TABLE 5

LEND-LEASE AND CASH EXPORTS BY ECONOMIC CLASSES: VALUE AND PERCENTAGE DISTRIBUTION

(Value in millions of dollars. Percentage represents ratio to total exports)

Year	Total		Crude Materials		Foodstuffs		Semimanufactures		Finished Manufactures, Except Military		Military Equipment	
	Value	Per Cent	Value	Per Cent	Value	Per Cent	Value	Per Cent	Value	Per Cent	Value	Per Cent
Lend-Lease Exports[1]												
1941.....	726	14.5	62	1.2	273	5.4	76	1.5	135	2.7	180	3.6
1942.....	4,926	61.5	135	1.7	814	10.2	513	6.4	1,247	15.6	2,218	27.7
1943.....	10,340	80.5	264	2.1	1,461	11.4	719	5.6	2,586	20.1	5,310	41.3
1944.....	11,298	79.8	128	.9	1,479	10.4	707	5.0	3,560	25.1	5,424	38.3
1945.....	5,542	57.8	256	2.7	1,000	10.4	(2)		[2]2,460	25.7	1,826	19.0
Cash Exports[3]												
1941.....	4,294	85.5	300	6.0	229	4.6	695	13.8	2,234	44.5	835	16.6
1942.....	3,078	38.5	283	3.5	179	2.2	406	5.1	1,447	18.1	762	9.5
1943.....	2,501	19.5	398	3.1	199	1.5	371	2.9	1,265	9.9	2,268	2.1
1944.....	2,865	20.2	426	3.0	287	2.0	389	2.7	1,582	11.2	181	1.3
1945.....	4,046	42.2	619	6.5	678	7.1	(2)		[2]2,667	27.8	83	.9

[1] Includes merchandise shipped under the provisions of the Lend-Lease Act of March 1941, which authorized the President to furnish, without current compensation, supplies to the government of any country whose defense he deemed vital to the defense of the United States.

[2] Semimanufactures included with finished manufactures.

[3] The term cash exports denotes non-lend-lease trade; the data include, besides cash purchases, merchandise shipped by private relief agencies and by UNRRA as follows: 1941 $40,000,000; 1942, $27,000,000; 1943, $58,000,000; 1944, $120,000,000; and 1945, $480,000,000. UNRRA shipments alone totaled $609,000 in 1944, and $351,000,000 in 1945.

for 1936-38. Crude materials made up only 4 per cent of total exports in 1944 as compared with 23 per cent before the war.

CASH AND LEND-LEASE

In response to the demands of countries resisting Axis aggression, particularly the United Kingdom and France, merchandise exported on a cash basis showed a marked increase in 1939 and 1940 and continued to increase in the early months of the following year, but in the late months of 1941 and in 1942, as the Government developed facilities for the transfer of military supplies on a lend-lease basis and assumed direction of production and distribution, the cash trade suffered drastic declines. By 1943 cash exports had narrowed to include mainly supplies for Western Hemisphere countries, which, after the outbreak of the war in Europe, relied heavily on the United States for such items as metals, textiles, chemicals, coal, and industrial machinery.

Lend-lease contributions to the war effort of the Allied Nations had by 1942 become predominant in the export trade (Table 5). In the peak year 1944, lend-lease shipments constituted 97 per cent of military exports, 68 per cent of exports of other manufactures, including semimanufactures, and 84 per cent of foodstuffs exported. Foodstuffs constituted the main class of supplies moved under lend-lease arrangements in 1941, but, although continuing to expand, were far outranked by military equipment and other finished manufactures in 1942 and succeeding years. Crude materials formed a relatively small part of lend-lease exports throughout the period of the war.

1945 TRADE SHIFTS

The end of the war, with its resulting decline in lend-lease shipments and increase in non-lend-lease exports, brought considerable shifts in the composition of trade in 1945. Military equipment comprised only 20 per cent of exports in 1945, whereas other manufactures increased to 45 per cent. Foodstuffs made up 18 per cent of exports and they are likely to continue high during the period of reconstruction in war-torn areas. Crude materials marked the outstanding change, with an expansion in shipments that raised their value from $554,000,000 in 1944 to $875,000,000 in 1945 and their share to 9 per cent of total exports.

Essential commodities continued predominant in export trade in the final months of 1945, although export

TABLE 6

EXPORTS OF MILITARY EQUIPMENT, FOODSTUFFS, AND OTHER COMMODITIES TO LEADING COUNTRIES AND AREAS: TOTAL AND LEND-LEASE

(In millions of dollars)

Merchandise Class and Year	Canada[1]	American Republics	United Kingdom	U.S.S.R.	Africa and Near East	China, India, Australia, New Zealand[2]	Other Countries	Total
Military equipment:								
1938, total........	4	16	5	5	4	11	35	80
1941, total........	124	18	497	30	222	77	47	1,015
Lend-lease....	5	(x)	84	(x)	66	19	5	180
1942, total........	268	48	913	724	503	467	58	2,980
Lend-lease....	101	29	610	710	366	366	36	2,218
1943, total........	352	89	1,954	1,291	1,168	629	95	5,578
Lend-lease....	178	77	1,902	1,291	1,160	612	90	5,310
1944, total........	340	75	2,653	1,075	482	609	371	5,605
Lend-lease....	195	62	2,641	1,075	481	604	366	5,425
1945, total........	94	36	816	391	111	366	95	1,909
Lend-lease....	38	23	810	391	110	363	92	1,826
Foodstuffs:[3]								
1938, total........	75	46	137	(x)	5	6	163	432
1941, total........	43	74	281	1	17	15	69	500
Lend-lease....	4	—	266	—	3	(x)	(x)	273
1942, total........	47	75	597	165	38	25	41	988
Lend-lease....	(x)	(x)	592	164	31	23	1	811
1943, total........	70	89	819	524	96	24	33	1,655
Lend-lease....	(x)	(x)	816	523	89	22	12	1,462
1944, total........	92	140	773	505	56	91	105	1,762
Lend-lease....	2	(x)	769	505	43	86	73	1,478
1945, total........	95	163	336	329	99	81	570	1,673
Lend-lease....	2	(x)	318	313	46	64	256	1,000
Other commodities:								
1938, total........	374	413	372	65	146	154	1,021	2,545
1941, total........	796	796	796	74	291	284	468	3,505
Lend-lease....	2	(x)	210	(x)	27	32	(x)	273
1942, total........	990	584	1,000	534	426	335	166	4,036
Lend-lease....	16	(x)	833	484	302	245	17	1,897
1943, total........	977	623	1,689	1,175	435	515	194	5,608
Lend-lease....	29	21	1,567	1,147	329	456	19	3,568
1944, total........	961	819	1,806	1,890	414	519	387	6,796
Lend-lease....	39	20	1,689	1,861	222	432	133	4,395
1945, total........	944	1,046	996	1,115	414	484	1,007	6,006
Lend-lease....	14	12	766	1,076	120	338	390	2,716

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[1] Lend-lease exports include merchandise paid for but procured by Canada through lend-lease facilities and lend-lease shipments destined to other countries after further manufacture or assembly in Canada.

[2] Includes British Malaya and Burma in 1938, and 1941, to 1945.

[3] Edible animal products and vegetable food products; excludes a few articles such as salt and flavoring extracts included in Table 4.

(x) Less than $500,000.

TABLE 7

UNITED STATES EXPORTS OF LEADING COMMODITIES: TOTAL AND LEND-LEASE

(In millions of dollars. Totals include lend-lease and cash goods in 1941–1945)

Commodity	1936–38 Average	1939	1940	1941	1942	1943	1944	1945
Crude materials:								
Cotton, unmanufactured, total....	319	243	213	83	99	184	115	279
Lend-lease..................	—	—	—	35	65	135	58	155
Tobacco, unmanufactured, total..	143	77	44	65	68	170	146	239
Lend-lease..................	—	—	—	23	51	102	43	49
Coal, total....................	56	63	82	114	144	163	173	184
Lend-lease..................	—	—	—	—	1	(x)	3	21
Crude, petroleum, total..........	91	93	68	49	52	67	59	58
Lend-lease..................	—	—	—	—	1	1	6	2
Foodstuffs:								
Meats and edible fats, total......	43	53	35	139	451	758	694	390
Lend-lease..................	—	—	—	108	428	739	661	310
Dairy products and eggs, total....	6	8	18	131	306	456	563	425
Lend-lease..................	—	—	—	101	291	443	545	343
Fruits and vegetables, total......	98	98	54	91	87	156	225	274
Lend-lease..................	—	—	—	39	37	93	144	137
Wheat, including flour, total.....	62	61	33	35	28	56	76	329
Lend-lease..................	—	—	—	1	6	20	25	113
Feed, grains (corn, oats, barley, rye), total....................	44	23	27	18	10	7	15	38
Lend-lease..................	—	—	—	10	1	2	1	17
Sugar and related products, total..	7	13	17	10	18	56	38	35
Lend-lease..................	—	—	—	(x)	11	52	31	20
Manufactures, including semimanufactures:								
Machinery, total................	434	503	674	740	763	1,194	1,478	1,193
Lend-lease..................	—	—	—	26	338	845	1,077	624
Automobiles, including parts and accessories, total..............	286	254	254	339	433	274	638	580
Lend-lease..................	—	—	—	32	279	178	512	426
Other vehicles, except military, total......................	19	21	70	90	171	503	385	109
Lend-lease..................	—	—	—	6	80	459	356	51
Iron and steel-mill products, total	199	236	516	501	592	615	551	458
Lend-lease..................	—	—	—	42	357	422	323	179
Advanced manufactures of steel, total......................	44	50	68	106	120	125	117	115
Lend-lease..................	—	—	—	1	46	70	49	29
Chemicals and related products, total......................	117	153	197	236	266	336	403	394
Lend-lease..................	—	—	—	11	96	153	178	102
Petroleum products, total........	253	292	242	235	299	450	901	693
Lend-lease..................	—	—	—	53	210	385	830	562
Textile manufactures, including yarns, total..................	87	113	132	213	217	423	496	477
Lend-lease..................	—	—	—	4	35	250	275	165
Paper, paper manufactures, and wood pulp, total..............	40	38	96	91	86	85	89	101
Lend-lease..................	—	—	—	3	25	26	31	38
Nonferrous metals except precious, total......................	105	151	212	116	191	286	296	105
Lend-lease..................	—	—	—	16	138	231	250	54
Commodities exported for relief or charity, total................	—	—	7	40	32	59	120	139
Lend-lease..................	—	—	—	(x)	5	1	(x)	3
Military equipment, total........	54	129	399	1,015	2,980	5,578	5,605	1,909
Lend-lease..................	—	—	—	180	2,218	5,310	5,425	1,826

(x) Less than $500,000.

controls, so strictly enforced throughout the war period, were removed from most products, beginning in September (see McIntyre, Francis. "Removing War-Controls from U. S. Foreign Trade," U. S. Bureau of Foreign and Domestic Commerce *Foreign Commerce Weekly,* October 20, 1945, pp. 3-4, 25). Supplies sent by UNRRA and goods purchased by nations in the war theaters necessarily consisted of foodstuffs and basic commodities for reconstruction, and trade with other areas also continued to include largely the more essential commodities. Production of the less essential durables, such as passenger automobiles, electrical appliances, office machinery, and other similar manufactures so important in the pre-war export trade, had not proceeded rapidly enough by the end of the year to make large shipments possible, even to countries eager to secure them. Distribution of military exports, foodstuffs, and other commodities to leading countries and areas is shown in Table 6.

WORLD DISTRIBUTION OF TOTAL EXPORTS

The United Kingdom stands out as the main destination for United States exports in each of the war years. After 1941 the U.S.S.R. ranked second. Africa and the Near East advanced to third place in 1943, but during the following year, as zones of combat shifted and destinations changed, supplies for the African area showed a decline while those to the Far East rose. The proportion of United States exports destined to each of these four areas in 1944, the peak year of the wartime trade, was 37 per cent, 24 per cent, 7 per cent, and 9 per cent. These ratios compare with 17 per cent, 2 per cent, 5 per cent, and 19 per cent of pre-war shipments (Table 10).

Canada and the American Republics, which together took about one-third of total exports before the war, were also among the leading destinations for United States merchandise in each of the war years. Although receiving relatively small amounts of lend-lease goods, the Western Hemisphere countries constituted the main markets for cash exports. Since, however, the American trade showed smaller expansion than that with areas receiving large lend-lease supplies, it registered a decline to about 17 per cent of total exports in both 1943 and 1944.

Trade with continental Europe other than the U.S.S.R., which comprised 23 per cent of exports in 1936-38, was completely cut off in 1941 through 1943 except for small amounts with neutral countries. Considerable lend-lease and relief supplies going to Europe in 1944, and 1945 raised its share to 4 per cent and 15 per cent, respectively.

In 1945 the total export trade showed increases only with the American Republics and the continent of Europe. Although cash, or non-lend-lease, exports to a number of countries registered marked gains, declines in lend-lease shipments reduced total exports to each of the other leading countries and areas. The substantial growth in exports to the American republics represented larger sales to many of the individual countries, whereas the increase in trade with Europe included UNRRA shipments as well as larger purchases by neutral countries and liberated countries. Government missions from Belgium, France, and the Netherlands procured substantial amounts of United States merchandise in the latter half of the year.

LEND-LEASE SUPPLIES

Under the lend-lease program in operation approximately four and a half years, the United States exported $33,000,000,000 worth of merchandise to the United Nations. Forty-two per cent went to the United Kingdom, 29 per cent to U.S.S.R., 10 per cent to Africa and the Near East, and 12 per cent to the Far East. Together these areas received 93 per cent of total lend-lease shipments. The remaining 7 per cent covered supplies destined for Western Hemisphere areas, including those which Canada procured through lend-lease facilities but paid for.

Slightly more than one-third of all supplies furnished as lend-lease aid during the war years left the United States in 1944. During that year, merchandise valued at $5,100,000,000 went to the United Kingdom, $3,443,000,000 to the U.S.S.R., $746,000,000 to the African theater, and $1,204,000,000 to the Far East. The year represented the high point of shipments to each of the four areas except Africa and the Near East, which showed a decline from $1,588,000,000 in 1943. Value of lend-lease shipments to each area and its proportion in total United States exports is shown in Table 11.

EXPORT CASH TRADE

Under the impetus of arrangements for close integration of the economies of the United States and Canada, achieved under the Hyde Park Agreement, total exports to Canada rose from an average value of $454,000,000 in 1936-38 to approximately $1,440,000,000 in both 1943 and 1944. Of this amount, 84 per cent was classed as cash purchases. The remaining 16 per cent, or approximately $200,000,000, represented merchandise paid for but procured through lend-lease facilities and lend-lease shipments destined to other countries after further manufacture or assembly in Canada. Exports to Canada, which comprised 15 per cent of total export trade in 1936-38, amounted to 22 per cent of cash trade in 1941, 47 per cent in 1943, and 27 per cent in 1945, or nearly double the pre-war share. Total exports to Canada dropped to $1,178,000,000 in 1945, 95 per cent of which was classed as cash purchases.

Cash export trade with the American Republics increased from $485,000,000 in 1936-38 to approximately $1,230,000,000 in 1945, the maximum attained in the war years. Following a policy of assisting the other American Republics in maintaining their economies throughout the war, the Government allocated to them scarce commodities on a basis comparable with United States requirements. This procedure made possible exports of relatively large amounts of such necessary commodities as iron and steel, textiles, coal, wood pulp and paper, dyestuffs, medicinals, and other essential chemical products. Thus the United States to a considerable extent replaced sources of supply cut off during the war. Trade with Latin America comprised approximately one-third of total cash-purchase exports in both 1944 and 1945, or about double the pre-war share.

Cash exports to other leading areas declined steadily in value from 1941 through 1943. In the latter year, when total cash exports touched the low point of the war period, slightly less than 25 per cent of United States cash exports went to Eastern Hemisphere countries. During each of the following two years Africa, especially the Union of South Africa, Near Eastern countries, and India increased their purchases, as did also the United Kingdom and the continent of Europe, particularly after VE-Day. Nevertheless, goods taken by all Eastern Hemisphere areas formed only 40 per cent of total cash exports in 1945. Values for cash trade with continental Europe as shown in Table 11 include commodities exported for relief or charity by private agencies as well as by UNRRA. Such goods made up about 80 per cent and 60 per cent of so-called cash exports to Europe in 1944 and 1945, although they formed only 4 per cent and 11 per cent of total cash trade.

IMPORT TRENDS

The incoming trade of 1945 exhibited a distribution of merchandise into economic classes comparable to that of 1936-38. Crude materials and semimanufactures comprised 51 per cent of total imports, almost the same proportion as in the pre-war period, and foodstuffs and manufactures, representing 28 per cent and 20 per cent, varied little from that time (Table 4).

This distribution, although interesting, does not mean, however, that the import trade reverted to its pre-war commodity composition (Table 8). Wartime influences had not yet disappeared. Still lacking were manufactured goods from most of the continent of Europe and the large supplies of rubber, tin, silk, and sugar, formerly coming from Far Eastern areas. Raw materials and foodstuffs, predominant in the wartime trade from Western Hemisphere countries, continued to form the bulk of imported supplies. Even at the year's end, goods arriving from war areas formed only a small part of total imports.

Stimulated by the Government's

TABLE 8

UNITED STATES IMPORTS[1] OF LEADING COMMODITIES

(In millions of dollars)

Commodity	1936–38 Average	1939	1940	1941	1942	1943	1944	1945
Total imports for consumption	2,461	2,276	2,541	3,222	2,769	3,390	3,879	4,075
Crude materials:								
Wool, unmanufactured	57	50	85	205	311	296	186	241
Nonferrous ores and concentrates[2]	32	33	68	127	140	168	152	140
Undressed furs	65	50	74	104	66	86	121	132
Crude rubber	179	178	318	418	118	33	76	99
Tobacco, unmanufactured	33	37	37	38	37	42	60	81
Crude petroleum	21	23	32	43	13	15	49	75
Hides and skins	52	47	50	83	78	66	61	49
Raw silk	99	121	125	62	(x)	(x)	—	1
Foodstuffs:								
Coffee	141	140	127	177	205	273	326	346
Cane sugar	152	125	113	153	108	184	212	202
Fruits, nuts, and vegetables	81	76	78	82	49	76	105	152
Grain (wheat, corn, oats, barley, and rye)	54	8	12	19	16	139	297	77
Fish, including shellfish	31	32	29	28	29	44	53	76
Wines and whisky, and other spirits	69	57	53	49	50	81	108	61
Meats, fats, and dairy products	47	41	26	30	35	38	36	46
Cocoa	35	28	32	39	19	39	46	33
Molasses, including inedible	14	8	13	24	30	27	59	21
Semimanufactures:								
Nonferrous metals[3]	146	160	251	369	320	297	298	409
Copper	35	41	68	133	150	142	153	183
Aluminum metal, plates, and bars	5	3	5	4	36	41	30	98
Wood pulp	85	76	60	66	73	77	72	116
Gas and fuel oil	19	11	28	28	16	46	50	55
Sawed lumber, except cabinet woods	15	18	21	43	54	37	47	52
Vegetable oils, expressed, inedible	57	34	40	35	14	18	20	20
Finished manufactures:								
Military equipment	1	1	1	1	48	207	211	196
Paper and manufactures	120	127	133	147	139	139	142	158
Burlaps	35	28	45	52	31	49	54	65
Clocks, watches, and clocklike mechanisms	9	10	13	17	24	45	47	60
Cotton manufactures	42	38	29	20	9	9	10	34
Machinery, including electrical apparatus and agricultural implements	18	13	9	13	40	37	35	28
Wool manufactures	20	19	19	20	20	11	11	19
Leather manufactures	9	7	3	3	4	10	12	18
Flax, hemp, and ramie manufactures	27	21	19	16	12	7	5	8

[1] Imports for consumption.

[2] Including those used in the manufacture of iron and steel.

[3] Including those used in the manufacture of iron and steel; also includes a small amount of manufactures.

(x) Less than $500,000.

TABLE 9

EXPORTS[1] AND IMPORTS[2] BY LEADING COUNTRIES AND AREAS

(In millions of dollars)

Area	1936–38	1939	1940	1941	1942	1943	1944	1945
EXPORTS								
Total	2,967	3,177	4,021	5,147	8,080	12,964	14,257	9,806
Canada	454	489	713	994	1,334	1,444	1,441	1,178
American Republics	[3]485	549	683	902	718	813	1,055	1,263
United Kingdom	499	505	1,011	1,637	2,529	4,505	5,242	2,189
U.S.S.R.	49	57	87	108	1,425	2,995	3,473	1,838
Continental Europe[4]	678	716	537	90	35	98	602	1,448
Africa and Near East	160	148	191	534	975	1,711	954	630
Far East[5]	557	608	684	719	890	1,202	1,314	1,096
Other countries	85	105	115	163	174	197	176	163
IMPORTS								
Total	2,489	2,318	2,625	3,345	2,745	3,381	3,921	4,136
Canada	345	340	424	554	717	1,024	1,260	1,128
American Republics	[3]542	518	619	1,008	977	1,318	1,594	1,623
United Kingdom	174	149	155	136	134	105	85	88
U.S.S.R.	25	25	21	30	25	30	50	54
Continental Europe[4]	507	438	207	106	56	96	149	253
Africa and Near East	97	117	179	208	249	264	321	448
Far East[5]	757	686	967	1,199	523	420	354	424
Other countries	42	45	53	104	64	124	108	118

[1] Including re-exports.
[2] General imports.
[3] Includes Canal Zone in 1936 and 1937.
[4] Excludes U.S.S.R.
[5] Includes Asia except the Western area and Oceania; data after 1941 primarily covered trade with India, Ceylon, China, Australia, and New Zealand.

program for accumulating stocks of strategic materials, imports of crude materials and semimanufactures reached the highest level of the war period in 1941. Valued at $2,100,000,000, or two-thirds more than the pre-war 1936-38 average, these materials comprised 65 per cent of total imports. Although dropping by 20 per cent in 1942, as rubber, tin, and vegetable oils receded, crude and semimanufactured materials showed increases in each successive year, and in 1945 reached a total of $2,093,000,000. Wool, lumber, and metals were imported in relatively large amounts in each of the war years. Metals accounted mainly for the rise in 1945 over 1944, although wood pulp from Sweden in the latter half of the year and some increase in rubber from the Far East contributed.

Imported foodstuffs advanced to the unusually high level of $1,362,000,000 in 1944, mainly as a result of large importations of alcoholic spirits and grain. A decline in these commodities in 1945 lowered total foodstuffs to a value of $1,155,000,000, notwithstanding considerable expansion in vegetables, fruits, edible nuts, and candy, and a moderate increase in coffee.

Imports of finished manufactures other than military supplies from Canada barely maintained their value during the war years. Burlaps were well sustained except in 1942, and newsprint rose slightly in value, but other manufactures dropped under pre-war value despite marked gains in leather goods, cotton cloth, and jewelry from the American Republics. Imports of textiles from Switzerland and the United Kingdom also showed advances during 1945, nevertheless total textile imports amounted to barely three fifths the value of pre-war years. Among European manufactures, only watches and clocks arrived in relatively large amounts throughout the war. Swiss watches increased fivefold in value in 1943, 1944, and sixfold in 1945, as compared with 1936-38.

SOURCES OF IMPORTED MERCHANDISE

Canada and the American Republics supplied 73 per cent of United States imports in 1944 and 67 per cent in 1945, as against 35 per cent in 1936-38, an outstanding change in sources of supply. Imports from Canada expanded almost steadily from 1938 through 1944, and though showing a moderate decrease to $1,128,000,000 in 1945, were nevertheless three and one fourth times larger than in 1936-38. Imports from the American Republics rose steadily every year after 1938, except in 1942 when the ocean-shipping crisis interfered with the movement of supplies, and in 1945 reached $1,623,000,000, three times the pre-war value.

Among arrivals from Eastern Hemisphere areas, those from Africa and the Near East showed marked increases throughout the war, but in 1945, with a value of $448,000,000, comprised only 11 per cent of United States imports. Supplies from the United Kingdom and Far Eastern areas, steadily declining through 1944 and showing a moderate expansion in 1945, remained only fractionally as large as in pre-war years. Imports from continental Europe fell to one-tenth their pre-war value in 1942 and, though mounting in each successive year, recovered only to the extent of one half in 1945. Imports from the U.S.S.R., comprised largely of undressed fur skins, continued small as in pre-war years. Sources of supply and the part they played in war and pre-war years are shown in Tables 9 and 10.

TABLE 10

PERCENTAGE DISTRIBUTION OF EXPORTS[1] AND IMPORTS[2] BY LEADING COUNTRIES AND AREAS

Area	1936–38 Average	1939	1940	1941	1942	1943	1944	1945
EXPORTS								
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Canada	15.3	15.4	17.7	19.3	16.5	11.1	10.1	12.0
American Republics	[3]16.3	17.3	17.0	17.5	8.9	6.3	7.4	12.9
United Kingdom	16.8	15.9	25.1	31.8	31.3	34.8	36.8	22.3
U.S.S.R.	1.7	1.8	2.2	2.1	17.6	23.1	24.4	18.7
Continental Europe[4]	22.9	22.5	13.4	1.7	.4	.8	4.2	14.8
Africa and Near East	5.4	4.7	4.8	10.4	12.1	13.2	6.7	6.4
Far East[5]	18.8	19.1	17.0	14.0	11.0	9.3	9.2	11.2
Other countries	2.9	3.3	2.9	3.2	2.2	1.5	1.2	1.7
IMPORTS								
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Canada	13.9	14.7	16.2	16.6	26.1	30.3	32.1	27.3
American Republics	[3]21.8	22.3	23.6	30.1	35.6	39.0	40.7	39.2
United Kingdom	7.0	6.4	5.9	4.1	4.9	3.1	2.2	2.1
U.S.S.R.	1.0	1.1	.7	.8	.9	.9	1.3	1.3
Continental Europe[4]	20.4	18.9	7.9	3.2	2.0	2.8	3.8	6.1
Africa and Near East	3.9	5.0	6.8	6.2	9.1	7.8	8.2	10.8
Far East[5]	30.4	29.6	36.8	35.8	19.1	12.4	9.0	10.3
Other countries	1.7	1.9	2.0	3.1	2.3	3.7	2.8	2.8

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[1] Including re-exports.

[2] General imports.

[3] Includes Canal Zone in 1936 and 1937.

[4] Excludes U.S.S.R.

[5] Includes Asia except the Western area and Oceania; data after 1941 primarily covered trade with India, Ceylon, China, Australia, and New Zealand.

TABLE 11

LEND-LEASE AND CASH EXPORTS TO LEADING COUNTRIES AND AREAS: VALUE AND PERCENTAGE DISTRIBUTION

(Value in millions of dollars)

Area	Value					Per Cent of Total Lend-Lease or Cash					Per Cent of United States Exports				
	1941	1942	1943	1944	1945	1941	1942	1943	1944	1945	1941	1942	1943	1944	1945
LEND-LEASE EXPORTS															
Total	739	4,933	10,358	11,306	5,562	100.0	100.0	100.0	100.0	100.0	14.4	61.1	79.9	79.3	56.7
Canada	11	117	207	236	55	1.5	2.4	2.0	2.1	1.0	.2	1.4	1.6	1.7	.6
American Republics	(x)	35	98	82	35	.7	.9	.7	.7	.6	(x)	.4	.8	.6	.4
United Kingdom	573	2,038	4,286	5,100	1,893	77.5	41.3	41.4	45.1	34.0	11.1	25.2	33.1	35.8	19.3
U.S.S.R.	1	1,361	2,966	3,443	1,783	.1	27.6	28.6	30.5	32.1	(x)	16.8	22.9	24.1	18.2
Continental Europe[1]	5	(x)	20	455	657	.7	(x)	.2	4.0	11.8	.1	(x)	.2	3.2	6.7
Africa and Near East	96	700	1,588	746	278	13.0	14.2	15.3	6.6	5.0	1.9	8.7	12.2	5.2	2.8
Far East[2]	53	665	1,114	1,204	843	7.2	13.5	10.8	10.6	15.2	1.0	8.2	8.6	8.4	8.6
Other countries	—	17	79	40	18	—	.3	.8	.4	.3	—	.2	.6	.3	.2
CASH EXPORTS															
Total	4,408	3,147	2,607	2,952	4,244	100.0	100.0	100.0	100.0	100.0	85.6	38.9	20.1	20.7	43.3
Canada	982	1,216	1,237	1,205	1,123	22.3	38.6	47.4	40.8	26.5	19.1	15.0	9.5	8.5	11.5
American Republics	902	683	716	973	1,228	20.5	21.7	27.5	33.0	28.9	17.5	8.5	5.5	6.8	12.5
United Kingdom	1,064	491	220	143	296	24.1	15.6	8.4	4.8	7.0	20.7	6.1	1.7	1.0	3.0
U.S.S.R.	107	65	29	30	55	2.4	2.1	1.1	1.0	1.3	2.1	.8	.2	.2	.6
Continental Europe[1]	85	35	78	147	791	1.9	1.1	3.0	5.0	18.6	1.7	.4	.6	1.0	8.1
Africa and Near East	438	275	123	208	352	9.9	8.7	4.7	7.0	8.3	8.5	3.4	.9	1.5	3.6
Far East[2]	666	226	88	110	253	15.1	7.2	3.4	3.7	6.0	12.9	2.8	.7	.8	2.6
Other countries	163	156	116	136	145	3.7	5.0	4.4	4.6	3.4	3.2	1.9	.9	1.0	1.5

[1] Excludes U.S.S.R.

[2] Includes Asia except the western area and Oceania; data after 1941 primarily covered trade with India, Ceylon, China, Australia, and New Zealand.

(x) Less than $500,000.

Trade resuming or expanding after the end of the war represented mainly products from the United Kingdom and the continent of Europe. Leading British goods showing advances comprised leather gloves, unmanufactured wool, cotton cloth, linens, and worsteds. Imports from wartime inaccessible European countries included wood pulp from Sweden; diamonds from Belgium; flower bulbs from the Netherlands; brandy, essential oils, and floral essences from France; and leaf tobacco and rose oil from Bulgaria. The Far Eastern trade showed increases for rubber from Ceylon and British Malaya, rubber and pepper from India, bristles and wool from China, and abaca and copra from the Philippine Islands.

Although a considerable volume of goods arrived from the Far East throughout the war years, mainly commodities from India, Ceylon, Australia, and New Zealand, 1945 imports came to little more than half their pre-war value. The trade reflected the absence of sugar and coconut products from the Philippine Islands, rubber and tin from British Malaya and Netherlands Indies, tung oil from China, and raw silk and other products formerly purchased from Japan. Although China furnished some supplies, particularly tungsten and tin, throughout the period of the war, imports from that country in 1945 barely equaled one twelfth of the imports in the pre-war period 1936-38.

EXPORT-IMPORT BALANCE

Owing to expansions in shipments under the provisions of the Lend-Lease Act, the excess of merchandise exports over imports mounted many fold. Amounting to an average of $1,130,000,000 in 1938 through 1940, the export balance reached a maximum of $10,336,000,000 in 1944. As lend-lease shipments declined in 1945, the balance dropped to $5,670,000,000 for the year.

For many purposes, however, lend-lease shipments should be considered outside the scope of foreign-trade transactions. Omitting them, excess of exports over imports declined in 1941 and 1942, imports exceeded exports in 1943 and 1944, and exports were again the slightly higher of the two in 1945. These balances are shown in Table 1, along with balances including lend-lease shipments.

In contrast with transactions in the years 1938 through 1941, when large excesses of cash merchandise exports over merchandise imports were financed by imports of gold, the cash-import balances of recent years resulted in net outflows of gold. Net outward movements of gold, including earmarking operations, reduced United States stocks of gold every year from 1942 through 1945.

Excluding lend-lease shipments, imports of silver exceeded exports of silver in each year of the war. Net imports ranged from $41,000,000 to $18,000,000 annually as compared with an annual average of $158,000,000 in 1936-38.

Wartime trade with the Western Hemisphere featured a relatively greater expansion in imports than in exports, and the year 1945 continued to show a large import balance despite considerable expansion in the export trade with Latin America.

Imports from the American Republics, though falling slightly under exports in 1938 through 1940, a departure from the usual pre-war import balance, mounted rapidly during the war years. In both 1943 and 1944 imports exceeded exports by more than $500,000,000, and while imports showed less increase than exports in 1945, the balance of imports nevertheless totaled approximately $360,000,000. Thus the import balance showed a fourfold expansion over 1936 and 1937. In the five-year period 1941-45, merchandise imports from the American Republics exceeded merchandise exports by $1,800,000,000.

In trade with Canada, the excess of merchandise exports grew from $109,000.000 in the pre-war period 1936-38 to $617,000,000 in 1942. Thereafter, as the import trade showed greater expansion than exports, the export balance declined and in 1945 amounted to approximately $50,000,000. Both imports and exports, however, showed declines in value in 1945.

Trade with other countries during the war more nearly depicted the war effort of the United States than trends in commerce.

Exports to Eastern Hemisphere countries included merchandise, largely lend-lease, shipped to the armed forces or other representatives of the United Nations stationed in the country. A large part of United States exports to Italy and to North Africa, for example, consisted of supplies destined for the Allies during their operations in those theaters. Many goods recorded as exported to India were later flown to China. As already indicated, supplies going to United States forces abroad and that part which reached civilians through them are excluded from the statistics. Thus, for many countries and areas a balance of trade determined from the statistics of war years may be far from the true balance.

FOREIGN TRADE POLICIES *

By Henry Chalmers

Consultant on Commercial Policy, Department of Commerce

GENERAL

By the end of 1945 only limited progress had been made, except by the United States and a few foreign countries, toward demobilization of wartime controls and restrictions upon foreign trade. Resumption of trade with the areas formerly under Axis control has thus far been slow and uneven. Nor had much progress been made toward harmonizing the diverse commercial programs of the individual countries on the basis of common principles, in a concerted effort to facilitate the general revival and expansion of international trading. However, the prospect for greater progress in this field during 1946 was considerably improved by a number of developments late in 1945. These included the conclusion of the Anglo-American economic negotiations; the proposal by the United States, with British support, for an international conference on trade and employment within the coming year; and the completion of the necessary ratifications for setting up the Bretton Woods monetary and financial organizations.

The termination of hostilities in 1945 put an end to the forced commercial seclusion of most of Europe and of the Far East, and to the arbitrary diversion of the production and trade of those regions to the purposes of Germany and Japan. It also no longer made necessary many of the wartime trade restrictions that were resorted to by the United Nations in order to meet the overriding military demands upon the available supplies, funds, and shipping. Considering the drastic changes in the economic and financial position of so many countries wrought during the war, however, and the widely disorganized conditions left in its wake, a rapid or general return to pre-war trade relations could hardly have been expected.

The United States, Canada, the Union of South Africa, and a few other countries located outside the zones of active conflict had, by the end of 1945, taken substantial steps toward removing their various wartime restrictions upon foreign trade. Although usually continuing their price controls, these governments have gone far toward clearing the way for their nationals to resume the exportation and importation of most commodities under something like the pre-war pattern, in so far as the conditions set by other countries permitted.

Positive action toward trade resumption was taken by the substan-

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* For a further discussion of this subject, see series of articles in *Foreign Commerce Weekly* of United States Department of Commerce, beginning February 9, 1946.

tial enlargement of loanable funds of the Export-Import Bank of the United States and by Canada's new export credit facilities. As a result, these two countries were able to finance on credit the continued flow to their Allies of certain civilian goods which before the end of the war had been planned for shipment under the Lend-Lease or Mutual-Aid programs, also to finance new purchases of supplies urgently needed by various war-ravaged countries, beyond their current ability to offset with their export goods or with cash. Sweden and Switzerland also facilitated the restoration of international commerce through the extension of substantial official credits to a number of the other European countries.

Most countries, however, have felt that the particular economic and financial position in which they found themselves did not yet permit them to restore equally unrestricted conditions for foreign trading, until they could make many domestic readjustments in various fields and, in some cases, conclude financial arrangements with supplying countries.

The changes in the measures for foreign trade control actually made during 1945 varied considerably among the different regions or groups of countries, in the light of their special circumstances and immediate objectives.

LATIN AMERICA

In many of the Latin American countries, the wartime control of imports through joint arrangements with the United States has been succeeded by stronger local governmental controls, mainly through the wider adoption or application of direct import permit systems. Their principal concerns appear to see that their foreign exchange reserves and earnings are used primarily for the importation of essentials, especially productive equipment, and to shield certain war-developed local industries from severe foreign competition. However, both the newer import permit systems in Latin America and the older exchange controls were restrictively applied during 1945 to only a limited extent, and thus far appear to be largely precautionary measures.

BRITISH EMPIRE

Such relaxations of their wartime controls as most members of the British Empire have made during 1945—with the exception of Canada and South Africa, earlier noted—have been confined mainly to trade within the Empire, and with the few non-British members of the sterling area. Their inadequate holdings of non-sterling exchange, especially of dollars, has been the dominant consideration in their continuing, and sometimes even tightening, the existing restrictions upon trade with outside countries. The future trading possibilities of the entire sterling area with outside countries, notably with the United States, were involved in the Anglo-American financial negotiations held at Washington in the fall.

FORMER EUROPEAN NEUTRALS

On the European Continent, the four former neutral countries—Sweden, Switzerland, Spain, Portugal—had managed to continue commercial dealings both with the German-dominated areas and, irregularly, also with the outside world. The termination of the war apparently required no radical changes in the official controls over the foreign trade operations of their nationals. Sweden and Switzerland were exceptionally active during 1945 in reorienting and enlarging the range of their trade relations. Their governments assisted through agreements with other European countries for each to grant permits freely for the exportation of specified products to the other, with provision for official credits to cover temporary excesses in shipments to those other countries above what goods could now be obtained from them in return.

WESTERN EUROPE AND SCANDINAVIA

Among the former secluded areas of Europe, only the countries of western Europe and Scandinavia made any substantial progress during 1945 toward the general resumption of trade, with either other European or with overseas countries. The bulk of their importations during the year, particularly from the United States, was arranged through purchasing missions or other centralized agencies of their governments, if not actually carried through by them. All these governments stressed, however, that this arrangement is to be regarded as distinctly transitional. Thus far, overseas trade even with these countries has been more or less a one-sided movement, of goods shipped to them. The revival of sizable exports from them in most of their accustomed lines has to await the restoration of their domestic production to a point where they can spare much for shipment abroad, and often also deflation of their trade-inhibiting price levels and exchange rates.

Some beginnings have been made by a few of these liberated countries toward authorizing direct foreign importations on the part of their commercial firms. That is still quite limited as to the products covered, and official permission is required for each transaction, which needs to be sufficiently essential to the general import program of the country to warrant allocation of funds out of their inadequate exchange holdings or foreign credits. Gradual improvement in their internal economies, adjustment of exchange rates, and the currently active negotiation of foreign loans or credits, together should facilitate progress during the period ahead, both as to the total volume of the foreign trade of these countries, and as to the degree of direct participation in it of private commercial firms.

In the matter of resumption of trade and the methods of its control, Italy and Greece are in the same general position as western Europe.

EASTERN EUROPE

The state of political as well as economic unsettlement of most of the countries of eastern Europe,—in general, all east of Germany—the disrupted state of their transport, and the meager foreign exchange at their disposal, render more remote their resumption of any substantial imports from western European or overseas countries, beyond the relief shipments supplied by UNRRA. The extensive experimentation with state control of domestic industries that is going on in almost all of these countries, the close reorientation of the economies of several of them with that of the Soviet Union and, in the case of the former German satellites, the heavy deliveries to the Soviet Union called for under the reparations accounts, operate further to limit their early resumption of sizable trade with outside countries. There has yet been little indication from most of the governments of eastern Europe as to how much scope they contemplate for private trading.

In their present stage of military occupation and basic reorganization by the Allies, both Germany and Japan are as yet outside the scope of possible normal trade relations or policies. Soviet Russia has announced no changes during 1945 in its long-standing monopoly of foreign trade, and is not here specifically dealt with.

FAR EAST

In many of the formerly secluded areas of the Far East, the process of liberation from enemy control was going on through most of 1945. The present prospect is that governmental agencies or officially-designated commercial organizations will handle the external trade of many of these areas during the initial period of its resumption, with private transactions to be gradually restored, under governmental license. The greatest progress toward the restoration of normal trading has been made in the case of the Philippines. The recent lifting of centralized wartime controls by China, over most imports and some exports, is expected to facilitate trade resumption there, as soon as physical and financial limitations allow.

THE MONETARY FUND AND INTERNATIONAL BANK

The early setting up of the International Monetary Fund and the

International Bank for Reconstruction and Development was assured late in December, with their ratification by the great majority of the countries which had participated in the Bretton Woods Conference of the preceding year. Essentially, the Bretton Woods agreements make provision for the orderly adjustment of the exchange values of the various national currencies, for the tiding over of particular countries with temporary exchange difficulties, and for long-term loans under international auspices, for the reconstruction and productive development of the various member countries requiring them. Much is expected from this first venture in the broad, economic collaboration of the nations toward the revival of their commercial and financial relations on a stable and liberal basis.

These two financial institutions are expected to facilitate the transition from war to peace in international trade and finance in a number of ways. The operations of the International Monetary Fund are designed to minimize a repetition of the sudden and arbitrary exchange depreciations by countries acting alone, which made many long-term international transactions hazardous for a long period after the last war. Its program is calculated to combine substantial stability in the monetary relations of nations, with such flexibility as may be necessary to effect the adjustments called for in many countries after so disruptive a war. The provision for accommodation to countries experiencing temporary exchange shortages for conducting current business is intended to make it easier for countries maintaining restrictive exchange controls to relax them, and ultimately to eliminate them, and to make it less necessary for countries having difficulty in their balance of payments to resort to measures which would reduce or divert international trade.

Supplementing such loan or credit arrangements as may be worked out between individual countries, the International Bank is designed to assist the long-term financing of specific productive projects in the reconstruction and development of the member countries. Through the international guarantee it can offer, the Bank is expected to stimulate the revived flow of private funds into foreign loans and investments, as well as to provide direct loans out of its own governmentally-subscribed funds or others available to it, and incidentally to set sound standards for all operations of this character. It aims particularly to promote the long-range balanced growth of world commerce by encouraging international investment in the productive resources and facilities of the less developed countries.

ANGLO-AMERICAN CREDIT AGREEMENT AND ITS TRADE IMPLICATIONS

More limited in the scope of its participants, but promising to make possible the reopening of trade on a freer and more competitive basis with a considerable range of countries, were the Anglo-American discussions that were concluded in Washington early in December. Highly significant understandings in the field of commercial policy accompanied the two financial arrangements: the definitive settlement of all lend-lease obligations and war claims between the two countries, and the extension by the United States to the United Kingdom of a line of credit for new purchases, —together aggregating $4,400,000,000 —at moderate rates of interest and repayable in a flexible manner over a long term of years.

Through affording the United Kingdom the means for financing its exceptionally large import needs during the transition period, and for adjusting the heavy debts incurred during the war to the other members of the sterling area, the way was opened for several important trade-liberating measures. Exchange restrictions upon payments for current imports into the United Kingdom from the United States are to be lifted promptly upon the coming into effect of the credit arrangement. Within a year, any quantitative restrictions maintained on imports of particular products into the

United Kingdom are to be applied without discrimination against the products of the United States, and such sterling funds as may then be available to any of the Empire or other areas for current use are to be freely convertible for purchases in dollar countries or elsewhere. Finally, a program was launched for the early simultaneous negotiation of agreements for reductions of tariffs and trade preferences between the United States and a group of important trading countries, including all the British Empire countries.

PROSPECTIVE INTERNATIONAL CONFERENCE ON TRADE AND EMPLOYMENT

No less important, from a broader view, was the concurrence of the British and American governments in a set of basic principles and policies concerning the reduction of trade barriers and related matters, the general acceptance of which is expected to bring about a revival and enlargement of the trade of all countries, on a more liberal, multilateral and non-discriminatory basis. These proposals were promptly placed before the community of nations by the United States, as the basis for an international conference on trade and employment, now contemplated tentatively for the latter part of 1946. The broad program there proposed in the field of commercial policy, and the Bretton Woods agreements in the monetary and investment fields about to come into operation, were designed to supplement and reenforce each other, in promoting the restoration and expansion of the trade, employment and general prosperity of all participating countries.

PUBLIC ACCOUNTING

By Carman G. Blough
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GENERAL

As in other years, developments in the field of Public Accounting during 1945 reflected the increasing use and importance of accounts in the management and direction of affairs both public and private. The end of the war and the beginnings of the reestablishment of peacetime industry and commerce brought new problems. The year's progress in the development of their solution refocused attention upon the nature of accounts and reemphasized the tentative character of accounting measurements. Accounting concepts have also been involved in developments in the areas of governmental regulation and control, governmental operation, and taxation. All of these developments are characterized by their recognition of the utilitarian nature of accounts.

TERMINATED WAR CONTRACTS

Although the problem of accounting for terminated war contracts is not one which arises only at the end of the war, a termination of the war contract of an individual contractor may well mark the end of the war operations of that company. Regulations for the accounting procedures to be used in the determination of the contractor's claim and his rights under the contract were developed continuously during the war period by governmental agencies and were released in numerous regulations and memoranda of the War and Navy Departments and the Office of Contract Settlement. These statements, however, were not concerned with the procedures necessary for the adequate reflection of the effect of the terminated contract in the financial statements of the contractor.

From the standpoint of the contractor, the termination of his contract gave rise to a claim against the Government, or a higher-tier contractor, for an amount representing costs expended upon the contract plus his profit allowance. Various procedures were suggested to account for the profit arising from such terminations and the reflection of the termination claim and profits in the financial statements of a war contractor. After its consideration of the general accounting principles applicable to the particular problems involved in a terminated contract, the committee on accounting procedure of the American Institute of Accountants in April, 1945 issued *Accounting Research Bulletin* No. 25, "Accounting for Terminated War Contracts."

The committee took the position that the amount of the claim arising at termination should be accounted for as a sale and that the cost elements applicable to that contract should be reflected in the regular operating accounts of the company. This treatment is recommended in spite of the fact that the amount of the contractor's claim may be difficult to determine at the effective date of termination. Under rules of accrual accounting, profit from a terminated contract would be recognized as having accrued at the effective date of the termination; accordingly, there should be an accounting for all reasonable estimates of the amount of the claim.

The summary statement of the conclusions expressed in *Accounting Research Bulletin* No. 25 with regard to these points found wide adoption in commercial practice and is here set down: "(1) The profit of a contractor on a fixed price supply contract terminated for the convenience of the government accrues as of the effective date of termination. (2) For the preparation of financial statements subsequent to termination, those parts of the termination claim which are reasonably determinable should be recorded; when the aggregate amount of the undeterminable elements is believed to be material, full disclosure with respect thereto should be made by footnote or otherwise. . . . (5) All of the contractor's own cost and profit elements included in the termination claim should preferably be accounted for as a sale, and separately disclosed if material in amount. The costs and expenses chargeable to the claim may then be given their usual classification in the accounts."

EXPENSES AND LOSSES ALLOCABLE TO WARTIME INCOME

It has been well recognized by accountants and others that the determination of the expenses and losses arising from wartime operations of a business is difficult. In many cases such expenses can not be finally determined until after the cessation of wartime operations; some of them will not be incurred except in the process of reconverting operations to a peacetime basis. During the war years it was suggested that these uncertainties be recognized by providing, in current financial statements, reserves for the expenses and losses attributable to wartime operations which might ultimately be determined. Many companies created such reserves either by charges to income or by charges to surplus.

The end of the war brought the problem of accounting for wartime expenses and losses and these so-called "post-war" reserves into prominence. The accounting treatment of such items has reflected the varying concepts of the nature and purpose of statements of income. From the view that periodic statements of income are useful solely as records to reflect historical segments of the totality of recognized revenues and expenses, the expenses and losses attributable to wartime operations which are incurred or determined subsequent to the cessation of wartime activity are to be reflected as charges in current statements of income. From the view that income statements are useful to reflect a measure of the result of the activities for a particular period of time and as such serve to provide an interpretive financial history, the expenses and losses to be reflected in the income statement of any one year may be only those expenses and losses which arise from the operations of that period or are allocable to its revenues.

During 1945 there was considerable

professional discussion directed to a consideration of these concepts and their applicability in the development of procedures for the reflection of expenses and losses attributable to wartime operation and for the treatment of "post-war" reserves. The year did not see a complete crystallization of views upon this point, but there was a wide expression of the opinion that statements of income would be most useful if the expenses and losses applicable to wartime operations, and hence allocable as charges against revenues of war years, were to be excluded from statements of income reporting revenues from peacetime activities and that "post-war" reserves which are found to be excessive should be returned directly to surplus so as not to affect the income reported in peacetime financial statements.

ACCOUNTING FOR EMERGENCY FACILITIES

During the war period, the Government issued many certificates of necessity applicable to facilities newly acquired or about to be acquired when it was determined that they were necessary for the production of war or essential civilian goods or services. Under the provisions of the Internal Revenue Code, the owner of the facility to whom the certificate of necessity was issued was permitted to deduct portions of the cost of the facility for tax purposes in such a manner that the entire cost might be amortized within a period of 60 months or less. While technically such accelerated amortization was applicable only in the determination of the tax liability, many companies applied the same rates of amortization in calculating the depreciation charge applicable to such properties in their financial accounts. As a result, at the end of a 60-month period, or earlier in case of an earlier certificate of nonnecessity or presidential declaration of the end of the "emergency period," the cost of such facilities would be reflected as fully depreciated in the accounts of the company.

Under general procedures of accounting, the amortization of the cost of depreciable property is related to its useful life, and corresponding proportionate charges to reflect the expiration of that cost are made in the periodic statements of income. While there is no suggestion in this procedure that the carrying value of depreciable property will reflect its current value, there is a presumption that the depreciation charges will reflect adequate consideration of the useful life of the property. The problem faced by companies having "emergency" facilities which have been depreciated at accelerated rates is that of determining whether or not the nominal or zero carrying value of such facilities is proper for the representations made by the company in its financial statements.

As in respect to the accounting treatment of the expenses and losses applicable to wartime operations, there are differences of opinion as to the manner in which this problem is to be solved. Accountants who hold one concept of financial statements suggest that the recording of depreciation at accelerated rates during the war years has resulted in the recovery of such costs, and that, accordingly, any corrections of these charges will be improper if such costs are again reflected in future statements. Accountants placing a different interpretation upon the purpose of financial statements emphasize the common importance attached to them with respect to the representations relating to the operating results of the company. From this view, if emergency facilities which have been fully amortized in the accounts are presently determined to have a substantial and continuing usefulness and value which is material in relation to the total property of the enterprise, an adjustment of the previously recorded depreciation or amortization would be made in order that statements of income purporting to represent the results of future operations may reflect a portion of the cost of using such facilities in those years.

As in other areas, accounting thought and practice has not completely crystallized. Many companies owning emergency facilities will continue to use them in their post-war operations and will make no adjustment of their carrying value; many others owning similar facilities will effect a restatement of carrying value in order that their statements of income may more nearly reflect the results of operations of future periods.

ACCOUNTING AND TAXES

The use of annual periods for summarizing and reporting the financial results of business operations underlies much of the difference between the principles and procedures of accounting and those of income-tax assessment. The estimates and approximations which are inherent in the determination of annual income for accounting purposes are in conflict with the greater definiteness and finality of measurement which are required for a uniform administration of an income-tax program. The differences between the accounting and the income-tax concepts of income are made increasingly important by variations in tax rates between years and by the high tax burdens of business enterprise.

Basically the tax and the accounting concepts of income differ as to the time at which items are to be considered taxable revenues or deductions from such revenues and as to the manner of reporting items affecting the determination of the tax assessment in annual statements of income. Financial accounts are usually kept upon an accrual basis, under which the recognition of revenues or expenses in any periodic report of income is determined by factors other than the receipt or disbursement of funds. For purposes of taxation, however, recognition and measurement of receipts and expenditures provide a convenient definiteness, and tax law and regulations reflect an increasing reliance upon such factors in the measurement of income subject to tax. Such income measurement, for example, results in the designation as income in the year of collection, payments received for certain types of services to be performed in the future. In terms of accounting concepts, such collections would not be recognized as income until the period in which the service was performed. Thus, the income statement of that annual period would reflect both the revenue, or part of the revenue, and its related cost or expense as determined in the performance of the service. The common recognition of these differences between tax and financial accounting is reflected in the numerous adjustments and reconciliations necessary to provide a comparison of the data reported in the income tax return with those reported in a statement of income, the keeping of duplicate or memoranda record data on different bases, etc.

There has not been common recognition of problems of financial reporting which may result from differences between data displayed in statements of income and those shown in the income-tax return. Such problems arise when items which are chargeable or deductible for tax purposes are not, in accordance with generally accepted accounting principles, reflected in the income statements. In such situations, illustrated by the deduction for tax purposes of unamortized debt discount and expense upon the refunding of a bond issue and a loss on the sale of capital assets charged to surplus, the income tax assessed during a period will not be completely related to the items of revenue and expense reported as determining the period's income in the income statement. If the transaction has resulted in a deduction for tax purposes, the net income reported in the income statement will be larger (because of a reduced tax assessment shown as an expense in the income statement) than it would have been had the transaction not been effected. Conversely, if the transaction has resulted in a taxable gain, the net income reported in the income statement will be smaller than it would otherwise have been. While the effect of such transactions is not often important, in some cases the amounts involved are sufficiently large to be of major significance.

After a lengthy consideration of this problem, the committee on accounting procedure of the American Institute of Accountants in December, 1944 issued *Accounting Research Bulletin* No. 23, "Accounting for Income Taxes." With respect to the statement presentation of the tax effect of items included in the computation of income taxes but not in the preparation of the income statement, the committee recommended that, when they are material, they should be reflected either by including the increase or reduction as an adjustment of the taxes for the period so that the amount of taxes shown in the income statement would be the amount payable upon the items shown in that statement, or by reporting in the statement of income a portion of the item as a charge or credit equivalent to its tax effect. Such procedures were designed to provide in the statement of income an amount which, designated as net income for the period, would reflect a charge for taxes equivalent only to the amount of taxes which would be payable on the items reported in the statement.

The procedures recommended in the Committee's bulletin were the subject of wide discussion and argument. The most authoritative criticism of the procedures suggested was voiced by the Securities and Exchange Commission in its *Accounting Series Release* No. 53, issued in November 1945. The Commission discussed the facts relating to the registration of securities by a public utility company to explain the various considerations underlying its conclusions in respect to "Charges in Lieu of Taxes." The Commission concluded that it would not be acceptable to it to report in a statement of income filed with the Commission any amount as taxes for the period other than that estimated to be actually payable in that year. However, the Commission recognized the propriety of a charge in the income statement equivalent to the tax reduction arising from the deduction for tax purposes of bond discount and expense on a refunded issue of bonds, deferred in the accounts, and from the loss on the sale of properties, charged to surplus in the accounts. The charge equivalent to the tax reduction was offset by reducing the company's deferred charge of bond discount and expense and the amount of the loss on the sale of properties charged to surplus.

ACCOUNTING PRINCIPLES IN GOVERNMENTAL REGULATIONS

Of the various areas in which governmental agencies have made use of the principles and procedures of accounting, none has provided as great a difference of opinion between professional accountants and governmental personnel as that represented by the regulation of public utilities. The authority given the Federal Power Commission to prescribe the accounting practices of the utility companies subject to its jurisdiction has been exercised in certain respects to provide methods of accounting for such utilities which are at variance with procedures consistent with generally accepted accounting principles. During 1945, the attention of the profession has been focused upon such differences as they relate to accounting for intangible assets.

In two cases, those involving issues before the Federal Power Commission in respect to the Montana Power Company and the Arkansas Power & Light Company, the conclusions reached by the Commission or its staff and the accounting treatment ordered or advocated by the staff were in conflict with the views of state regulatory agencies. In these cases, important differences arose over the possible existence of and the treatment to be accorded intangible assets of the utility company. During the acquisition of the companies which were combined to form the present utility, payments in excess of the "original cost" of the property of the individual companies were made by the present company. The accounting system prescribed by the Federal Power Commission requires that such payments in excess of "original cost" are to be reflected in an account designated as "Acquisition Cost Adjustments." The policies of the Federal Power Commission have generally effected a requirement that the balance of this account be written off immediately or amortized through charges to income during some relatively short period of time. In the cases referred to, the state utility commissions determined that certain of the prices paid to acquire a predecessor or to combine companies represented a prudent investment of funds and the acquisition of an intangible asset which had a substantial and a continuing usefulness. From the view that the intangible continued in existence and retained its value, these state commissions objected to any prescribed amortization.

The views of professional accountants in respect to intangible assets were generally summarized in a bulletin released by the committee on accounting procedure of the American Institute of Accountants in December, 1944. That committee in its *Accounting Research Bulletin* No. 24 classified intangibles into three categories: "(a) those having a term of existence limited by law, regulation, or agreement, or by their nature (such as patents, copyrights, leases, licenses, franchises for a fixed term, and goodwill as to which there is evidence of limited duration); (b) those having no such limited term of existence and as to which there is, at the time of acquisition, no indication of limited life (such as goodwill generally, going value, trade names, secret processes, subscription lists, perpetual franchises, and organization costs); and (c) the excess of a parent company's investment in the stock of a subsidiary over its equity in the net assets of the subsidiary as shown by the latter's books at the date of acquisition, in so far as that excess would be treated as an intangible in consolidated financial statements of the parent and the subsidiary. This class of asset may represent intangibles of either type (a) or type (b) above or a combination of both."

It is the expressed opinion of the Committee that, while the amortization of the cost of type (a) intangibles would be proper to reflect their limited usefulness, no such amortization is required for type (b) intangibles, although a company may at its discretion provide for their amortization. While professional accountants are not concerned, as accountants, with the problems faced by regulatory agencies in determining properly adequate rates to be charged by public utilities, they have generally objected to the argument frequently used in regulatory orders that the amortization of intangibles is required by generally accepted accounting principles. The view of professional accountants is that, if such amortization as may be prescribed in reference to intangible assets determined to have a substantial and continuing value is necessitated by regulatory concepts or procedures, orders effecting such amortization should indicate that the prescribed treatment is required by those concepts and procedures and not by generally accepted accounting principles.

AUDITING

In the work of auditing, public accountants have been faced with the problems resulting from restricted manpower, etc., caused by the war. While such problems necessitate a re-examination and study of auditing procedures to improve auditing proficiency, no major modifications of those procedures were made during the year.

One problem of basic professional interest is that of the auditor's responsibility for published financial data and the extent to which such responsibility may continue beyond the time at which the auditor has completed his examination of the client's statements and accounts. In regard to the former, the committee on auditing procedure of the American Institute of Accountants issued, in May, 1945, its Statement on Auditing Procedure No. 22, "References to the Independent Accountant in Securities Registrations." The purpose of the statement was to review the liabilities imposed upon the accountant as an expert under the Securities Act of

1933, and to recommend statements to be used in registration statements and prospectuses which would indicate clearly the relationship of the auditor to the financial data presented therein. Although it is generally recognized that financial statements are primarily the statements and representations of the company, language has been sometimes used in registration statements which might be interpreted to suggest that the auditor named as an expert had prepared the financial data and that they were presented upon his authority as an expert.

The committee on auditing procedure suggested terminology to be used when financial statements, earning tables, historical financial information, etc. are referred to in a registration statement or prospectus. The suggested terminology provides a clear statement or report that the accountant, in his capacity as an independent expert, has examined the financial statements which are, however, the representation of the registrant, and that the expert opinion of the accountant should be read in conjunction with those representations.

Opinion in respect to the auditor's responsibility for the disclosure of the effect of events which have occurred subsequent to the termination of his examination has not crystallized. The problem arises in those situations in which the accountant is asked to give his consent to the use of his certificate to accompany financial statements incorporated in securities registration statements or prospectuses some time after the completion of the auditor's examination. In such cases, events occurring subsequent to the completion of the auditor's examination and prior to the release of his consent to the use of his certificate may have a material effect upon the representations contained in the financial statements. It is generally believed that, when such events have been brought to the attention of the accountant prior to his giving his consent to the use of his certificate, he should insist upon their disclosure before doing so. However, in view of the fact that the auditor's opinion with respect to financial statements is determined only as the result of an examination, it is believed that he has no primary responsibility for the determination of the existence or non-existence of events or situations which might have a material effect upon the representations contained in the financial statements after he has completed his examination.

LEGISLATION

The year 1945 was marked by the extension of state legislation affecting public accountants by providing restrictions upon the practice of public accounting by persons who may be unqualified. The purpose of such legislation is to protect public interest by restricting the use of designations indicating competence by accounting practitioners and the expression of opinions, upon which third parties may rely, by unqualified persons. The pattern of such legislation provides for the registration, after its enactment, of two types of persons: (1) "public accountants," those persons who are not certified public accountants but who are currently engaged in the practice of public accounting, and (2) certified public accountants. The affixing of a signature with any wording indicating that he is an accountant or auditor, or that he has expert knowledge in accounting or auditing, to any accounting or financial statement or to any opinion on, report on, or certificate to any accounting or financial statement, is restricted to registered persons. The designation "public accountant" is limited to those persons who registered under the act at the time of its passage. The effect of the legislation in respect to the limited registration of "public accountants" is to provide that in future years the practice of public accounting will be eventually restricted to those persons who can qualify under the act as "certified public accountants" by meeting the designated educational and examinational requirements. During the year, Texas and California enacted such laws, to bring the total number of states and territories providing such regulatory legislation to 17.

GOVERNMENTAL ACCOUNTING AND AUDITING

Recent developments in the field of Federal governmental accounting and auditing have resulted from the efforts of many persons to get an application of modern commercial accounting practices to the accounts of the Federal Government. In 1945, the George bill (S. 375) was passed as Public Law No. 4. A section of that law provides that the financial transactions of all government corporations be audited by the General Accounting Office in accordance with principles and procedures applicable to commercial corporate transactions. It also provides that a report of each audit shall be made by the Comptroller General to the Congress not later than six and one-half months following the close of the fiscal year, shall set forth the scope of the audit, and shall include statements of assets and liabilities, capital and surplus or deficit, analysis of surplus or deficit and income and expense.

Following the passage of that legislation and other enabling acts, there was created within the General Accounting Office a division of Corporation Audits. The appointment of a director of the Corporation Audits Division and his administrative assistants brought persons with wide experience in both public and governmental accounting practice into the division.

Congressional interest in the problem is further evidenced by the introduction and enactment as Public Law No. 248 in December, 1945, of the Whittington bill (H.R. 3660). This law requires "wholly owned" government corporations to submit annually to the President and the Bureau of the Budget a business-type budget plan of operations providing for needed flexibility in order that authorized activities may be properly conducted. There is no requirement for submission of budgets by "mixed ownership" government corporations, but both types are required to have their financial transactions audited by the General Accounting Office in accordance with the principles and procedures applicable to commercial corporate activities. The report of the General Accounting Office audit is to be submitted to Congress each year, together with comments and information deemed necessary to keep Congress informed of the operations and financial conditions of the corporations, pertinent recommendations of the Comptroller General, and transactions observed in the course of the audit which, in the opinion of the Comptroller General, are without authority at law.

This legislation, and requests by governmental representatives for professional assistance in making recommendations for the improvement of the accounting practices within the Federal Government and in assisting in the creation and organization of the Corporation Audits Division, are evidence of increasing recognition given to the need for the modernization and improvement of the accounts of the Federal Government.

TAX POLICY

Much of the controversy relating to taxation and many of the conflicts between principles of taxation and of accounting are the result of a lack of a sound and basic tax law. Since the passage of the 16th Amendment permitting a Federal direct tax upon income, tax laws have generally reflected legislative expedients deemed necessary to provide the revenues immediately required. As a result, those laws and their related regulations have developed into a confusing patchwork within which there appears little pattern of a basic and consistent program or policy of taxation. It has been frequently suggested that a satisfactory reconciliation of these difficulties may only be secured by re-examination of the whole area of Federal taxation, the determination of a basic tax policy, and the consistent application of that policy through the years, with variations in needed revenues being made by variations in tax rates. Professional accountants have continued to make recommendations favoring such a program. Organizations of professional accountants have officially urged the creation, by Congress, of a nonpartisan tax commission which could suggest the development of a basic tax policy and recommend its adoption. Individual accountants have assisted in research studies for the purpose of recommending such a program. During 1945, one such study was published as *A Tax Program for a Solvent America* by the committee on post-war tax policy. This committee, whose work was made possible by grants from the Faulk Foundation, was composed of outstanding representatives of the academic, financial, legal, and public accounting fields.

CONCLUSION

The accounting problems created by the war and those which arise from its termination demonstrate the need for a continuing study of the basic concepts underlying accounting principles and adaptation of them to changing economic and social modes of thought. Important areas still are largely unexplored, and with the decreasing importance of the immediate problems of war and reconversion, it can be hoped that the continued study of the use of accounts will provide clarification of the basic concepts of income, cost and value, nature and purpose of statements of income, inventories, etc. The war period has amply illustrated the need for continuous evolution and development of accounting principles and practices, and has demonstrated that the significance of accounts rests upon the essential usefulness of accounting concepts.

LIFE INSURANCE

By James S. Elston
Assistant Actuary, The Travelers Insurance Company

INSURANCE IN FORCE IN PRIVATE COMPANIES

The legal reserve life insurance in force in private companies Dec. 31, 1945 is estimated to have been about $154,600,000,000, nearly 4 per cent greater than at the end of 1944. The new paid-for business for the year, not including revivals or increases, is estimated at $15,300,000,000, an increase of about 5 per cent over 1944. Comparatively less insurance has lapsed or has been surrendered than ever before. The combined assets are estimated at $44,750,000,000, and the payments to policyholders and beneficiaries at $2,700,000,000.

OTHER INSURANCE IN FORCE

There is also in force about $7,000,000,000 insurance in fraternal orders and assessment organizations, $2,500,000,000 U. S. Government life insurance on veterans of the First World War, about $135,000,000,000 as of July 18, 1945 National Service Life Insurance on members of the armed forces and veterans of the Second World War, and the life insurance value of survivors' benefits for widows and orphans under the Old Age Security Act estimated to be about $67,000,000,000.

NATIONAL SERVICE INSURANCE

A great amount of the National Service Life Insurance, however, has since lapsed, estimates of the proportion lapsed on separation from service varying but running as high as 80 per cent. Prevention of such lapsation and restoration of insurance already lapsed is recognized as highly desirable, and the life insurance business is attempting to do all it can to help. Companies have urged their agents to advise the veterans to retain their insurance and to answer their questions about it. The most recent general step is the holding of about 400 proposed seminars throughout the country by the life underwriters associations to help equip their members with the knowledge that will best enable them to help most.

LEGAL RESERVE LIFE INSURANCE *

(Dollars in Millions)

Income—Disbursements	1944	1943
Total Premium Income	$4,869	$4,421
Investment Income	1,387	1,368
Other Income	755	653
Total Income	7,011	6,442
Death Claims Paid	1,203	1,092
Matured Endowments	361	325
Annuities and Disability	291	285
Surrender Values Paid	235	295
Dividends to Policyholders	438	410
Total Paid Policyholders	2,528	2,407
Other Disbursements	1,444	1,374
Total Disbursements	3,972	3,781

Assets—Liabilities—Surplus	1944	1943
Real Estate	$ 1,061	$ 1,350
Mortgages	6,674	6,701
Bonds	28,537	24,688
Stocks	704	606
Collateral Loans	4	5
Loans to Policyholders	2,134	2,373
Cash	711	874
Deferred and Unpaid Premiums	576	543
All Other Assets	653	626
Total Admitted Assets	41,054	37,766
Liabilities	37,850	34,932
Surplus#	3,204	2,834

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* *Spectator Insurance Year Book*—All United States companies (305).

# Includes amount set apart for dividends to policyholders during following year and special, voluntary, contingency, etc., reserves.

NEW ISSUES—TERMINATIONS—INSURANCE IN FORCE

	1944	1943	1944	1943
	Ordinary Business		Group Business	
New Issues	$ 9,526	$ 8,340	$ 2,158	$ 3,468
Terminations:				
Death	881	801	164	145
Maturity	210	194	—	—
Surrender	581	710	23	13
Lapse	1,363	1,458	256	159
Other	728	797	224	137
Total	3,763	3,960	667	454
Insurance in Force	97,577	91,777	24,446	22,961
	Industrial Business		All Lines of Business	
New Issues	3,723	3,586	15,407	15,394
Terminations:				
Death	205	185	1,250	1,131
Maturity	151	129	361	323
Surrender	273	328	877	1,051
Lapse	1,312	1,321	2,931	2,938
Other	271	289	1,223	1,223
Total	2,212	2,252	6,642	6,666
Insurance in Force	27,048	25,571	149,071	140,309

FRATERNAL INSURANCE *

(Dollars in Millions)

	1944	1943
Number of Orders	183	182
New Business	$ 678	$ 519
Amount in Force (End of Year)	6,794	6,496
Assets (End of Year)	1,541	1,454
Total Income	256	236
Total Disbursements	168	157
Net Amount Received from Members	176	166
Paid for Claims	114	110

* *Spectator Insurance Year Book*—All U. S. Fraternal Orders showing figures.

LIFE ANNUITIES

At the beginning of the year there were over 2,500,000 life annuities in force for an aggregate annual income of $800,000,000, of which $191,000,000 was actually being paid, $277,000,000 deferred but paid-for, and the balance being paid for. The total was divided between $503,000,000 individual annuities, $240,000,000 group annuities covering 1,500,000 American workers, an increase of 75 per cent during the war, and the balance supplementary contracts involving life contingencies payable to insured after maturity of endowments and to beneficiaries after death of the insured. Last year 39 per cent of the amount of maturing benefits was left as trust funds with the companies for future payment, mostly in instalments. This ratio has been increasing rapidly and is five times as great as 15 years ago. Much of these funds were available for spending if they had not been left with the insurance company by the recipient. This represents intelligent family planning and sound financing for the future welfare of American homes, but it is also an important additional contribution to the anti-inflationary saving of the nation.

INTEREST RATES ON NEW INVESTMENTS

As has been emphasized in previous reviews, one of the most important, if not the most important, problems is the continued low rate of interest earned on new investments. Unless this rate increases, the cost of life insurance will increase gradually (except as counteracted by an improved mortality rate) until the average rate on all investments, including old investments at high rates, approximately equals the rate on new investments.

Representatives of the life insurance business were invited in 1945 by the Secretary of the Treasury to a conference to consider the Treasury's objectives in the Seventh War Loan and later in the Victory Loan. A research committee has been conducting research as to the relationship of life insurance and the public debt so that the problems and ideas of the business in connection with government finance can be given to the Treasury, the Federal Reserve Board, and other interested Washington officials, and in turn so that the wishes and ideas of the Treasury may be interpreted to the business.

The Treasury's prime responsibility is to manage the debt in the best interests of all the people. The insurance business should not hope nor ask for special treatment, but there are 70,000,000 policyholders, who constitute a considerable part of the whole population, and it seems that the business should attempt to make their interests thoroughly understood and to emphasize to the Treasury the constructive role which they can fill as present and prospective owners of a very significant proportion of the long-term debt. About $20,800,000,000, or approximately half of the life insurance assets, are now held in government bonds.

The life insurance companies have drawn up plans for expanded financing of home building and expect a big growth in the years ahead in the home mortgage field. They will have at least $1,000,000,000 annually to invest in mortgages, mostly in the financing of homes, provided building costs do not become excessive. They now own nearly one-third of all FHA mortgages. There is a need for otherwise broadening of the investment base so that there will be more avenues for the use of funds, which might include high grade common and preferred stocks and other income producing properties and classes of investments not now permitted. Some state laws have been revised recently to this effect but more revisions are needed. Investment in stocks would make funds available for the capital needs of industry. The research committee has proposed to the National Association of Insurance Commissioners a plan citing the excellent record of high grade preferred stocks over the past 20 years as to value and yields and pointing out their suitability for life insurance investment except for the factor of wide fluctuation in market prices under abnormal conditions and suggesting that in annual statements such stocks be valued by a new proposed formula which would level off the effect of the fluctuations.

QUESTION OF CONSTITUTIONALITY OF STATE PREMIUM TAX LAWS

After the United States Supreme Court, in the Southeastern Underwriters Association case, declared that insurance was commerce subject to Federal regulation, considerable difference of opinion arose as to the effects on the insurance business because for 100 years it had been under state regulation. Life companies had been voluntarily complying with the labor laws before the decision, and no question has been raised about them not having complied with other Federal laws. No one can predict the ultimate effect of such a great change, but the principal immediate question was as to whether state premium tax laws which discriminate in favor of local companies are constitutional. Taxes were paid in 1945 by most companies in all states, but active contests were instituted in 16 states by comparatively few companies whose executives concluded that this was the only safe way to protect their policyholders if it should be proved that the laws are unconstitutional. Decisions reached in the lower courts so far have been diverse but in the few highest state courts reached all have been in favor of the states. It will be several months before any case is passed upon by the United States Supreme Court.

To clarify the situation until the problems involved have been fully discussed and plans instituted for meeting them, Congress in March 1945 passed Public Law 15 which provided "that the continued regulation and taxation by the several states of the business of insurance is in the public interest"; and that the business of insurance shall be subject to the laws of the several states and "no act of Congress shall be construed to invalidate, impair, or supersede any law enacted by any state for the purpose of regulating the business of insurance, or which imposes a fee or tax upon such business unless such act specifically relates to the business of insurance, provided that after Jan. 1, 1948," but not before, the Sherman Act, the Clayton Act and "the Federal Trade Commissions Act shall be applicable to the business of insurance to the extent that such business is not regulated by state laws," but nothing shall render the said Sherman Act inapplicable to any agreement or act of boycott, coercion, or intimidation, and nothing herein shall affect the application to the business of insurance of the National Labor Relations Act, the Fair Labor Standards Act, or the Merchant Marine Act.

ELIMINATION OF WAR CLAUSE IN POLICIES

A survey by the Institute of Life Insurance of 156 companies made within 30 days of V-J Day showed that 66 per cent of the companies had already eliminated the war clause from all new policies being issued and that there were only 6 per cent of the companies not then considering the change. Nearly all the companies have now eliminated it in old as well as new policies. Action was taken by some companies within 24 hours of the cessation of hostilities in the far Pacific.

The war clause was generally adopted at the outbreak of the war for new policies issued, in the interest of the existing 66,000,000 policyholders. It was recognized that there might be a rush for insurance protection by the millions going into the armed forces, which would unduly weight the claim payments in the case of heavy battle losses. The Government provided up to $10,000 of National Service Life Insurance for each man or woman in the service, assuming the extra hazard which was not within the normal expectations of policy coverage. Practically all civilian policies already in force at that time carried no war clause, and death benefit payments in excess of $250,000,000 on the lives of servicemen have been paid under those pre-war policies. Some measure of the hazard involved during the war may be seen in the Veterans Administration figures showing well over $2,000,000,000 paid out in death claims under National Service Life Insurance. Some companies which had used "status" clauses excluding death while serving abroad in the war, announced settlement of claims on a "cause" basis, death caused by war, where such interpretation was more favorable to the beneficiary. At least one company indicated that it would review all war claims and probably pay them in full.

AIR PASSENGER TRAVEL COVERAGE

World-wide airline passenger travel without limitation is now regarded as a standard risk in the issuance of new life insurance policies by about one-half of the 100 life insurance companies (representing more than 80 per cent of the total insurance in force) included in a survey on post-war practices made in the autumn of 1945 by the Institute of Life Insurance. Such coverage is furnished by the other companies at extra premiums depending on the individual circumstances. Underwriting of pilots and crew members and of those using private pleasure or business planes has also been liberalized this year.

LIFE INSURANCE MEDICAL RESEARCH FUND

The Life Insurance Medical Research Fund has been organized, including 137 United States companies having over 92 per cent of the total amount of life insurance outstanding in all United States companies, and in addition 10 Canadian companies which contribute on the basis of their United States business. It is planned to invest about $3,500,000 over a period of six years in medical research aimed to improve the health and lower the mortality rate in the country, concentrating on supporting existing institutions in conducting research into the causes and cure of cardiovascular diseases. The first grants have been made to six prominent medical schools. Funds will also be allocated to support men in research who, without this aid, would be unable to enter this field.

These diseases were chosen first because of their primary importance to the public and to life insurance policyholders. They are the chief cause of death in the United States, causing during the war about five times as many deaths as the combat deaths in all branches of the armed forces. Another reason for the choice is that relatively little money is being spent otherwise in research in this field.

GROUP LIFE INSURANCE

Special attention was called to one purpose of life insurance when the papers reported that President Roosevelt had over $500,000 insurance in favor of the Georgia Warm Springs Foundation. It appears that some companies which have never transacted group insurance are entering that field.

A legal definition of group life insurance and its accompanying standard policy provisions were adopted nearly 30 years ago by some of the most important states. Since then considerable demand has developed for coverage outside the definition and many such contracts have been issued in states where no legal restrictions exist and after various successive changes of laws to cover particular situations in other states. A general survey of all developments, actual and probable, has been reported to the National Association of Insurance

Commissioners. It is hoped that, after more thorough study and discussion, actual suggested laws may be drafted and recommended by them for adoption by the states. Some of the principal changes recommended are: (1) extension of the definition so as to permit coverage on members of labor unions and debtors of a creditor; (2) recognition of extensions of coverage to employees of subsidiaries and affiliates of the policyholder; and (3) reduction of the minimum requirement from 50 to 25 lives.

The report includes a discussion of topics of current legislative interest on which unanimity of opinion has not been reached: (1) group insurance issued to the trustees of a fund established by two or more employers in the same industry, usually pursuant to collective bargaining agreements with labor unions; (2) group insurance on associations of employers, allowing a single policy to cover the employees of two or more employers associated only through some tie such as common membership in a trade association; and (3) group insurance issued to associations of employees and on other organizations where an employer contribution toward the cost of the insurance is impractical or impossible.

The Guertin bill endorsed by the state insurance commissioners and embodying the consensus of actuarial opinion as to the best standard nonforfeiture and valuation provisions has been adopted in nine more states, thus making 34 embracing 68 per cent of the population of the country for which companies can make the same plans for adopting a scientific formula for nonforfeiture values, and basing them on modern mortality tables, the Commissioners Standard Ordinary Mortality Table, and the 1941 Standard Industrial Table. It is hoped that New York State will soon cooperate, especially as it is felt that most of the other remaining states would follow suit. Other companies have also adopted more conservative reserve bases for business hereafter issued, by using a lower rate of interest than formerly.

EXTENSION OF SOCIAL SECURITY COVERAGE

In the spring of 1945, a Social Security report was published by a committee for the life insurance business, representing the culmination of years of study by the best qualified men in the companies. This included recommendations for the extension of old age and survivors' insurance and of unemployment insurance to classes of the population not now covered and of other actions to strengthen the system but also discussed other proposals for extension of which there is considerable doubt, pending further study, about their advisability for the ultimate good of the country. A thorough understanding should be attained, not only by a few but by the people, of the total comparative costs involved. The question is not one merely of statistics but of general economics and psychology.

The New York Times, stating that experts in the life insurance business should have a peculiarly valuable contribution to make to the study of Social Security, noted that all the committee's "recommendations, however, for an extension of the Social Security system are made subject to one extremely important qualification: For the individuals of an unregimented state to supply the necessary drive and to work together for economic progress, it is essential to have an effective system of rewards and incentives to make it worth their while, economically at least, to take risks and put forth efforts. To maintain proper incentives to work, Social Security should be determined by the level of subsistence. In a free country where people can work or not, as they like, the benefits of Social Security must be appreciably below what the individual ordinarily regards as a satisfactory standard of living for himself. This qualification must be kept consistently in mind in all proposals to improve Social Security if we are to maintain the health of the whole economy, upon which any Social Security system must depend." The Ways and Means Committee of the

House of Representatives has set up a staff of experts to study the costs of the present and proposed extended coverages of social security.

FIRE INSURANCE

By Edward R. Hardy

Secretary-Treasurer, Insurance Institute of America, Inc.

FIRE LOSSES

The statistics quoted under this heading are from the National Board of Fire Underwriters whose statistics have been compiled on the same basis for many years. It is possible by using this source to enable the comparisons from year to year to have value. For 1945, it shows that losses were $32,000,000 larger than for 1944, as compared with $75,000,000 larger than for 1943. There does not appear to be any outstanding losses which might be called conflagrations and so increase this amount. Perhaps the increase was owing to the large number of fires but more probably to the fact that, with the increased values now prevailing, the same amount of fire in a given property will naturally make for a larger loss. It may again be emphasized that there has not been time since the cessation of hostilities wholly to re-establish the fire prevention work on the previous high plane. In time, that will come but not immediately. The loss table presented is for the three years noted and is an excellent comparison, not only for the losses month by month for these three years, but for the totals for the three years, 1943 to 1945 inclusive.

SABOTAGE

Now that hostilities have ceased, it is possible to make statements in regard to sabotage which, while they were held to be true in previous years, required the close of hostilities to bring to light the necessary authentic facts. The best opinion is that throughout the period of war there was little, if any, loss caused by sabotage. One excellent authority stated that there was one loss, and that a small one, where he thought sabotage might have entered into the cause of the fire. Even in that case he felt that it was doubtful. There may have been on the part of the enemies of the Allies some hope, at least, if not expectation, that their nationals might attempt to damage the properties in which they were employed. There is no evidence that such was a fact and there is no real evidence that any such expectation was held. Nevertheless, it is well to record that at the conclusion of hostilities there is nothing to show that any attempt at sabo-

FIRE LOSSES BY MONTHS

	1943	1944	1945
January	$27,733,000	$38,572,000	$44,865,000
February	33,175,000	38,280,000	41,457,000
March	39,214,000	39,084,000	40,876,000
April	34,241,000	34,746,000	37,950,000
May	29,297,000	32,815,000	34,153,000
June	26,854,000	30,555,000	34,090,000
July	25,016,000	32,706,000	34,054,000
August	29,193,000	30,618,000	34,096,000
September	26,488,000	31,448,000	32,447,000
October	29,661,000	32,173,000	34,470,000
November	31,647,000	33,847,000	37,393,000
December	47,716,000	48,694,000	49,478,000
Total 12-months	$380,235,000	$423,538,000	$455,329,000

tage was made. Perhaps it is well to state that by sabotage is meant an attempt to bring about the form of loss covered by the policy in force. This would apply to all forms of insurance but is more apt to occur, if it does occur, in fire insurance.

OUTGROWTH OF THE ATLANTA CASE

The chief problem before the insurance companies, and this applies to all of them, is the outgrowth of the Atlanta decision (June 1944) of the Supreme Court of the United States overturning the decision in *Paul v. Virginia,* the details of which are fully set forth in THE AMERICAN YEAR BOOK for 1944. What is herewith presented is the outgrowth of that decision. It was appreciated by everyone engaged in the business of insurance, and by the United States Government, too, as well as the state governments, that to overturn the stated practices of 75 years based on a Supreme Court decision was so far reaching as practically to make havoc of the business. A conclusion was reached and a law passed to that effect which permits the insurance companies to make readjustments so as to line their business up with the states and the United States Government. In other words, to work out a plan which would harmonize the conduct of the business with the Supreme Court decision of 1943. It was realized that this would take time, and the law passed by Congress granted this time up to Jan. 1, 1948. If acceptable provisions have not been made and adopted by that time then the United States Government will take hold of the matter. The companies are diligently at work on the problem and will probably be able to present an acceptable plan by the time set.

OFF PREMISES LOSS

Two or three forms of insurance written by fire companies might be mentioned because they occasionally produce large losses. One such is damage by hurricane. In Miami, Fla., a hurricane resulted in an estimated loss of $50,000,000. A high percentage of this loss was on government property and did not affect the private companies because there was no insurance. Another hurricane occurred in Texas but the loss there was limited to an estimate of $2,000,000, and it can readily be seen how these losses come up. Another form of loss is that known as the "Off Premises" loss. Sometimes, instead of reducing the rate, the coverage, as it is called, will be extended. In other words, the loss will not be limited to the premises in which the fire occurs but to the property of the insured, which for one reason or another is not on the premises. An excellent example is that of a cleaning and dyeing establishment where a great deal of this type of insurance is involved because of the extended cover to include loss off the premises. This is limited to 10 per cent but, like all adventures under extended cover, it can bring losses which are disturbing to the underwriter. However, it is the province of insurance to cover losses, and in one way or another the policies of insurance must provide for them. One reason why the insurance business has grown to be so large and important is because it has been willing to make provision for new forms of loss.

THE STANDARD POLICY OF FIRE INSURANCE

The present policy, which was first adopted in New York State on July 1, 1943, has now been adopted by 42 states and Alaska and Hawaii. In a few states minor changes have been made and in Kansas it did not go into effect until Feb. 15, 1946. This shows, however, a most commendable attempt on the part of the fire insurance companies to standardize the basic contract for the whole country. This will be one big step toward working out the necessary laws by Jan. 1, 1948.

CASUALTY AND FIRE COVERAGE UNDER ONE POLICY

Practically all of the English companies have charters which permit them to write all forms of insurance and do not of necessity, in most cases, require a specific policy for a specific purpose. In the United States, the development was along single lines as companies were chartered for fire insurance, casualty insurance, etc., and limited to that form of coverage. Some 40 years ago, the casualty business began to be developed to large proportions by companies organized for that purpose. A fair amount of casualty insurance is based, of course, on legal liability and differs from fire insurance which is based on indemnity. With the development of business, big and small, it became necessary to have coverage for both of these forms, and others which may come under Life but need not be considered now.

There is a growing demand that the fire policy shall include to a certain extent, at least, coverage for some forms of casualty insurance. This probably would not apply to Workmen's Compensation insurance which is rather closely controlled by the states. In the case of a person owning his own home, and having a car in an adjoining garage, insuring both under the one policy might well be desired. This is merely an illustration. Just how far the movement will go is impossible to say, but the probabilities are that within a few years, five would be a reasonable estimate, such will be the usual form and not two policies as at present. It is to be desired that as few pieces of paper as possible be used in transacting business, and it can readily be seen that if one policy can include all of the essential needs there will be a substantial gain in clerical work to say nothing of other savings. Those who oppose the matter are not to be dismissed lightly because of the fact that their training is largely in one branch, and they are inclined to view things from that point of view, but like all things in business the problem will be solved and in the not too distant future.

1945 RECEIPTS

The last year for which complete statistics are available (1943) showed that fire premiums amounted to $1,154,000,000. The total income, including interest, rents, etc., amounted to $1,275,000,000. The losses paid amounted to $554,000,000, and the total disbursements, including all forms of expenses, amounted to $1,151,000,000. Complete statistics for 1945 will probably show premiums receipts of approximately $1,350,000,000. Without much change in the income including interest, rents, etc., the losses will run about 50 per cent of the premium receipts.

CASUALTY INSURANCE AND CORPORATE SURETYSHIP

By William Leslie

General Manager, National Bureau of Casualty and Surety Underwriters

THE ACCIDENT RECORD

Consistently following mileage trends, traffic accidents during the first two months of 1945 continued downward. Increased use of the automobile during the three following months brought an average increase in fatalities of approximately 3 per cent over the preceding year. However, with the relaxation of restrictions, June showed an increase of 11 per cent over the corresponding month of 1944; July, 15 per cent; August, 26 per cent; September, 40 per cent; October, 53 per cent; and November, 40 per cent. This rapid monthly increase over 1944 clearly indicates that the complete record for 1945 will not be a good one, and the National Safety Council estimates 29,000 fatalities for the year, an increase over 1944 of 20 per cent. With little hope of improvement during the early part of 1946, the situation assumes an extremely serious aspect and one which calls for far stricter enforcement of traffic laws and more concerted drives by those organizations and officials concerned with the problem.

In the occupational, home, and public (not motor vehicle) fields, accidental deaths during 1945 maintained approximately the same level as for 1944, according to the National Safety Council.

STATE LEGISLATION INCIDENTAL TO INSURANCE AS COMMERCE

The year 1945 saw 44 of the 48 state legislatures meeting in regular session with the result that much legislation affecting casualty insurance and corporate suretyship was enacted.

Some of the most important state legislation resulted from the United States Supreme Court decision in 1944 holding that insurance is commerce, and the enactment by Congress of Public Law 15 which is discussed below under "Federal Legislation." Such legislation included the enactment in ten states—Alabama, Arizona (law subsequently repealed) Connecticut, Florida, Kansas, Maryland, North Carolina, South Carolina, Tennessee, Texas—of laws regulating the rates for certain kinds of casualty insurance and suretyship. In order to preserve the validity of their premium tax laws, in view of the fact that insurance is now commerce and insurance companies of other states are engaged in interstate commerce, 18 states—Alabama, Arizona, Arkansas, Connecticut, Florida, Iowa, Maine, New Hampshire, New Jersey, New Mexico, North Carolina, Oklahoma, Oregon, South Dakota, Tennessee, Texas, Washington, West Virginia—passed statutes equalizing the premium tax imposed upon domestic and foreign companies. For the same reason 13 states—Arizona, California, Colorado, Delaware, Georgia, Iowa, Maine, Maryland, New Jersey, North Carolina, Oregon, Tennessee, Texas—repealed the so-called retaliatory laws designed to impose upon companies of other states the same tax and other burdens which such other states impose upon companies of the state having the law. Another problem that arose out of this new status of insurance as interstate commerce, was the necessity of relieving directors and officers of insurance companies from liability because of payment of taxes under state tax laws, and bills for that purpose were passed in 18 states—Arizona, Arkansas, California, Connecticut, Indiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, New Jersey, New York, Nevada, Pennsylvania, Texas, Rhode Island, Vermont, Virginia.

OTHER STATE LEGISLATION

Other state legislation worthy of note included a substantial number of amendments to the workmen's compensation laws to provide for moderate increases in benefits under these laws. Also, several states extended their workmen's compensation laws to cover occupational diseases. The problem of payment of compensation under the workmen's compensation laws to partially disabled employees sustaining subsequent injuries was intensified by the return to industry of many disabled war veterans, and 14 states—Arizona, California, Colorado, Connecticut, Delaware, Iowa, Kansas, Maryland, Massachusetts, Oregon, Pennsylvania, Tennessee, Washington, Wyoming—adopted laws in 1945 setting up special Second Injury Funds to take care of such compensation.

The trend toward strengthening of the automobile financial responsibility laws continued and in five states—Maryland, Minnesota, Nebraska, Pennsylvania (effective July, 1947), Wisconsin—such laws were revised to bring them in line with the pattern of the New York Financial Responsibility Law. A new financial responsibility law was adopted in Georgia.

Fifty-three bills pertaining to accident and health insurance were introduced into the legislatures of 22 states in 1945. Of these, 34 became law.

FEDERAL LEGISLATION

On March 9, 1945, Public Law 15 was made effective by approval of the President. In this Act, Congress sought to clarify the status of insurance regulation following the decision of the United States Supreme Court on June 5, 1944 that insurance is commerce and, when crossing state lines, is interstate commerce, subject to dual control of the Federal and state governments.

While leaving employer-employee relationships in insurance and acts of boycott, coercion and intimidation subject to applicable Federal laws, Congress declared a moratorium until Jan. 1, 1948 with respect to other matters in the application to insurance of the Sherman Act, and also with respect to the Clayton Act, the Federal Trade Commission Act, and the Robinson-Patman Antidiscrimination Act, with the proviso that the first three of these acts should become applicable to the business of insurance on Jan. 1, 1948 "to the extent that such business is not regulated by State law."

A committee representing all branches of the insurance business has been working for several months to develop a program for state legislation to carry out the intent of Congress that the states take necessary legislative action prior to Jan. 1, 1948. It is hoped that, from the deliberations of the committee, a satisfactory program will emerge.

Other bills pending in the Seventy-ninth Congress, but not yet enacted, that should be noted are: bill to set up a Federal bonding fund and two bills authorizing the Secretary of the Treasury to secure a blanket bond covering all government officials and employees required to be bonded; several bills affecting aviation insurance; and bills to broaden the Social Security Law.

WORKMEN'S COMPENSATION INSURANCE

The ending of the war had much less effect on Workmen's Compensation experience than had been anticipated. Judging from the results during past periods of unemployment, it was thought that the termination of war contracts and the reconversion of plants would bring on an epidemic of claims from displaced workers and those who were temporarily unemployed. Unemployment insurance seems to have borne the brunt of claims, however, and to date there apparently has been no marked tendency to reopen Workmen's Compensation claims for old injuries, such as was the case during previous periods of unemployment. It now appears that the compensation premium volume will hold up remarkably well and that the experience will not suddenly become adverse. Jobs are again available in industry, and the wage level seems more likely to increase than to decrease. These factors should have a good effect on the experience and tend to offset any unfavorable influences which, if coupled with the present low Workmen's Compensation rates, would produce adverse loss ratios.

Because the experience of war projects in which the United States Government had a direct interest in insurance costs was kept separate for statistical purposes, such experience will not distort the rate structure for peacetime operations. Such war projects were written under special rating plans available only to the United States Government and its agencies. The segregation of the experience on these specialized projects was decided upon in advance in order to make certain that such experience would not influence either the rate level or classification relativity for regular peacetime operations. Otherwise, the Workmen's Compensation rate structure for normal operations might have been seriously distorted.

It seems quite possible that the special rating procedures developed during the war for activities in which the United States Government has an interest may lead to a demand for the development of somewhat similar procedures in connection with peacetime coverages. There is a general trend toward multiple-line underwriting and package policies, and the insurance buyers who have had experience with the Comprehensive Rating Plan and with the special policies for Army Post Exchanges, etc., may demand that progress be made in adapting such procedures to fit peacetime conditions for ordinary business enterprises.

The new countrywide Rating Program that was introduced two years ago was approved in 1945 by the Virginia State Corporation Commission and is now in effect in 28 jurisdictions. Under this Program, a guaranteed discount reflecting a gradation in the expense allowance is applied unless the assured elects in advance one of three optional retrospective rating plans reflecting the same expense gradation. It is anticipated that this Program will likewise be approved by several other states in recognition of the principle that reasonably uniform procedures in the handling of the business must be permitted by all states.

The Casualty Insurance Expense Exhibit, designed to obtain countrywide expense data by line of insurance, has been distributed by the National Association of Insurance Commissioners, and the companies will report their data for the calendar year 1945. Detailed instructions for complying with this call have also been distributed in order to assure uniform reporting by the large number of casualty companies.

Workmen's Compensation rates are revised annually in each state, the revised rate level being based on the two latest available years of experience. The trend of Workmen's Compensation rates continued downward in 1945 in reflection of the favorable conditions prevalent during the experience period used for ratemaking purposes.

MISCELLANEOUS LIABILITY INSURANCE

The wartime policy of keeping the number of changes at a minimum was continued during 1945. However, some rate changes and interpretations were promulgated in connection with the comprehensive liability policy of the Defense Plant Corporation (now the Reconstruction Finance Corporation) and the Smaller War Plants Corporation. The rates for building or plant construction work let on a lump-sum basis and for machinery and equipment were materially reduced. The classification, rates, and minimum premiums for lump sum construction work were interpreted as applying to the Reconstruction Finance Corporation for certain operations by independent contractors. These operations include plant clearance, preparation of warehouse sites, and construction or alteration of buildings for storage and disposal of surplus war property. The plant clearance operations involve removal of machinery and equipment from plants owned by lessees where lease agreements have been cancelled or where particular equipment is no longer necessary.

The classification, rates, and minimum premiums for buildings or plants operated by lessees were interpreted as applying to coverage for the Reconstruction Finance Corporation in connection with its operations as a designated agency of the United States Government for the disposal of surplus property. The operations consist of taking charge of numerous properties which it and other governmental agencies acquired or constructed during the war, for the period such properties are vacant.

Another change of interest was the adoption of a revised procedure for the rating of three- and four-family dwellings. These dwellings are now rated on a unit basis countrywide except in Texas and Greater New York. Previously they were rated on an area basis.

The definitions of receipts and sales in the Manufacturers' and Contractors', Owners', Landlords' and Tenants' and Product Liability manuals were modified to exclude for premium computation purposes taxes which the insured collects as a separate item and remits directly to a governmental division, provided accurate records of such taxes are maintained apart from other receipts. These revised definitions were made applicable to all policies expiring on or after Dec. 1, 1945.

The Manufacturers' and Contractors' Liability classifications for stevedoring and freight handlers were modified to include coverage for accidents, other than accidents on board vessels, which occur at the site of the operations and after the operations have been completed or abandoned.

AUTOMOBILE LIABILITY INSURANCE

The overshadowing event of 1945, as far as automobile liability insurance was concerned, was the lifting of gasoline rationing the day following the cessation of hostilities in the Pacific. This development, although not unexpected, made it necessary to revise completely the method of rating private passenger automobiles since the rates for such automobiles were keyed to the type of gasoline ration book held during the rationing period. After full consideration of all aspects of the problem, the casualty insurance companies reinstated the Private Passenger Automobile Classifications Plan which had proved so successful in the pre-war period in differentiating between risks according to the hazard. This Plan recognizes differences in hazard according to differences in the use of automobiles on the basis of whether the automobile is used for business purposes or not. Class A-1 is the preferred classification under the Plan and consists of those cars which are not customarily used for business purposes and, in addition, are not driven more than 7,500 miles a year and for which there are no operators under 25 years of age; Class A consists of cars which are not customarily used for business purposes but which are not eligible for Class A-1 rates; Class B consists of all cars customarily used for business purposes.

As was to be expected, there was a sharp increase in the use of private passenger automobiles immediately after the discontinuance of gasoline rationing. The resulting increase in mileage, when coupled with the poor mechanical condition of many automobiles and the increased speed at which automobiles were operated after the relaxation of the stringent regulations that were in force during the war, all pointed to a recurrence of the accident rate that existed prior to the war. The cost of settling claims, particularly those involving property damage, continued to mount during 1945, and it was not anticipated that this unfavorable trend would change in the foreseeable future. In view of these factors, all of which were unfavorable from a loss standpoint, the rates for private passenger automobiles were revised simultaneously with the reinstatement of the Private Passenger Automobile Classifications Plan to produce a rate level which was somewhat under that existing prior to the war for bodily injury and slightly over the pre-war level for property damage.

Studies of rates and rating plans for commercial automobiles and garages were undertaken during 1945 with the view to developing rating programs for these classes of risks which would more accurately reflect the conditions of the post-war period as they will affect these classes.

Work progressed on a revision of the standard provisions for the basic automobile liability policy undertaken for the purpose of expressing the coverage now given in briefer and simpler language and form.

ARMY POST EXCHANGES, NAVY SHIP'S SERVICE DEPARTMENTS, AND SIMILAR RISKS

During 1945, officers' messes and officers' clubs of various branches of the United States Armed Forces, as well as civilian messes, made extensive use of the simplified, multiple line policies and special rating basis established in 1944 primarily to meet the needs of Army Post Exchanges and Navy Ship's Service Departments in the United States. Because of their unique operation, an additional rating basis was developed for Welfare and Recreation Departments of all branches of the Armed Forces for use with the combination contracts.

BOILER AND MACHINERY INSURANCE

The adoption of uniform manuals and policy forms by the two groups of boiler and machinery carriers has worked out satisfactorily, and in 1945 the business settled down again to a more stable basis. Written premiums are appreciably less than in 1944 but as this condition was brought about by the rewriting of a considerable portion of the business in 1943 and 1944, the earned premiums will counterbalance this reduction to a great extent.

There were few changes in rates and policy forms during the year. Probably the most noteworthy change was the permissive elimination of the so-called "Priority Clause" from the Use and Occupancy and Outage Endorsements. With the cessation of hostilities and the subsequent reconversion of plants manufacturing boiler and machinery equipment, it was felt that this restriction, which was largely a wartime measure, could properly be eliminated.

Mention might also be made at this time of the part taken by the insurance companies in assisting the Government during wartime in keeping war plants at their highest efficiency. Engineering and accident prevention inspections were made, without cost to the Government, throughout the wartime period, and so helpful were they that both the Army Service Forces and the Secretary of the Navy publicly expressed their appreciation of the work done by the National Bureau for Industrial Protection, through which these inspections, reports, and recommendations had been cleared.

BURGLARY, THEFT AND ROBBERY INSURANCE

There were no outstanding innovations in the burglary insurance business during 1945. The available coverages satisfactorily met the needs of the insuring public. A major point of interest is the rapidly increasing loss ratio of the residence and outside theft policy, the coverage of which was considerably broadened in 1943, making it saleable in territories where it was never sold before. Apparently the present rate scale is not sufficient to carry the policy and increased rates are necessary.

The money and securities broad form policy, providing all risk coverage on money and securities for commercial firms, supplied a wartime need and developed into one of the most popular policies ever placed on the market.

Wartime conditions, involving scarcities of materials and finished articles, educated the public to the need of burglary insurance, as no amount of advertising or publicity would have done. Now the crime wave sweeping the nation, and in fact the world, continues to show the need for burglary insurance. The volume of premium increased steadily over each of the war years, and it looks as though the increase might continue.

ACCIDENT AND HEALTH INSURANCE

The remarkable growth of this branch of insurance, noticeable during the past few years, continued, particularly in the fields of group insurance and hospitalization. Public interest in accident and health insurance increased to a level not heretofore experienced. Medical insurance, still in its infancy, is developing rapidly, as is the wholesale or franchise method of underwriting. Estimates are that from 40,000,000 to 50,000,000 persons are now covered by some form of accident and health or hospitalization insurance. Insurers are displaying great interest in determining the types of coverages desired by the insuring public and in attempting to make the fulfillment of those desires possible through simply and properly designed policies.

Aviation coverage in accident policies was broadened during the year to cover passenger airline travel anywhere in the world and to cover passenger travel in private planes within the bounds of North America, all without cost to the insured. Coverage was further extended to include ground coverage for insured engaged in the aviation industry.

Other refinements in accident policies included removal of the 90-day election clause in the Dismemberment provision and removal of the 20-day limit for election in the Elective Indemnity provision, both revisions being distinctly to the benefit of the policyholder.

The extension of individual policies

to members of the Armed Forces within the continental United States was continued on the same basis as heretofore. The Victory Farm Volunteer Accident Policy, developed in 1943 in cooperation with the Bureau of Agricultural Economics of the United States Department of Agriculture for the protection of boys and girls enrolled as Victory Farm Volunteers of the United States Crop Corps, was continued in 1945, but will no longer serve any purpose with the cessation of hostilities. The Civilian War Injury Policy, developed because of the war, has been discontinued.

SURETY BONDS

It is anticipated that the premium volume for 1945 for surety lines will show a continued decline, owing mainly to the effect on contract bonding of the wartime restrictions on construction. The ending of the war in August came too suddenly to affect the picture for the year. Although many public works projects had been planned to start upon the war's end, labor difficulties and the continuance of wartime shortages of building materials and supplies, proved too great a handicap to rapid commencement of such programs. However, the fidelity premium volume will show a large but deceptive increase, mostly for the reason that most surety companies since the middle of 1945 have changed their underwriting practice to permit the writing of fidelity and blanket bonds on a three-year basis at two and one-half times the annual premium. Many assureds are availing themselves of this saving, and, as a result, the fidelity premium volume for the year will show an unusual increase.

In addition to the underwriting change just mentioned, with its consequent premium reduction, 1945 was also in other respects a banner year, not only for the number of substantial premium rate reductions effected, but also for the broadening of bond coverages by surety companies without any compensating increase in premium.

The end of the Second World War saw a return by the Army and Navy to their ordinary peacetime practices in the letting and bonding of con-

NET PREMIUMS WRITTEN

(By kind or type of insurance, by all U. S. casualty companies, including state funds, in the calendar years 1941–44).

Kind of Insurance	Net Premiums Written in Calendar Years			
	1941	1942	1943	1944
1. Workmen's Compensation	$445,361,768	$590,984,782	$650,417,182	$641,518,082
2. Automobile Bodily Injury	357,178,119	350,267,017	284,627,763	320,079,518
3. Automobile Property Damage Liability	107,828,484	114,338,583	111,296,922	122,135,971
4. Auto Collision	55,209,388	52,692,545	49,305,698	56,883,678
5. Liability other than Auto	109,372,228	120,903,698	127,027,068	133,852,519
6. Property Damage and Collision other than Auto	9,805,732	12,429,373	14,356,381	14,908,604
7. Fidelity and Surety	102,318,490	111,564,951	90,511,444	85,872,454
8. Accident and Health	135,369,287	144,126,799	164,312,867	198,157,082
9. Burglary and Theft	31,006,421	34,094,794	39,583,159	47,519,113
10. Glass	11,955,569	13,064,456	12,921,875	14,052,123
11. Boiler and Machinery	19,192,570	19,537,812	21,635,411	21,113,731
12. Credit	4,025,810	6,550,623	6,359,256	5,652,019
13. Live Stock	816,614	1,062,758	1,014,043	1,118,042
14. Sprinkler	728,384	845,599	912,355	1,018,511
15. Auto Fire, Theft, Tornado and other Miscellaneous Lines	18,736,665	17,374,792	28,391,930	32,570,363
Total	$1,408,905,529	$1,589,838,582	$1,602,673,354	$1,696,451,810
Number of Companies	410	408	434	444

tracts. During the war years, when military necessity alone and not price was the controlling factor, the Armed Forces in many instances deemed it expedient to waive normal bonding requirements. With the return of peace, the Army and Navy found it advisable to reinstate their time-tested and customary practices relative to competitive bidding and bonding of successful bidders. From time to time, as the military situation of the Allies became less acute, revisions of Army and Navy procurement regulations seemed to foreshadow that the Services would eventually restore their normal bonding procedures.

During 1945, the surety business continued its study of problems affecting the bonding of public and private construction in an endeavor to make its resources and experience available as a stabilizing force in the great building boom which apparently will result from civilian shortages in construction created by the emphasis on military needs during the war period. Particular stress has been placed on problems connected with bonding of construction to meet the needs of individuals and private enterprise generally.

PERIODICAL PUBLICATIONS

Accounting Review
Tappan Hall, University of Michigan, Ann Arbor, Mich.
Annals, The
American Academy of Political and Social Science, 3457 Walnut Street, Philadelphia.
American Banker
32 Stone Street, New York City.
American Business Combined With System
4660 Ravenswood Ave., Chicago.
American Economic Review
Northwestern University, Evanston, Ill.
American Exporter
386 Fourth Ave., New York City.
American Import and Export Bulletin
10 Bridge Street, New York City.
American Insurance Digest and Insurance Monitor
605 North Michigan Ave., Chicago.
Banking
American Bankers Association, 22 East 40th Street, New York City.
Banking Law Journal
465 Main Street, Cambridge, Mass.
Barron's
40 New Street, New York City.
Bond Buyer, The
67 Pearl Street, New York City.
Business Week
330 West 42nd Street, New York City.
Commercial and Financial Chronicle
25 Spruce Street, New York City.
Controller
1 East 42 St., New York City.
Credit World
1218 Olive Street, St. Louis, Mo.
Eastern Underwriters
41 Maiden Lane, New York City.
Financial Age, The
132 Nassau Street, New York City.
Financial World
86 Trinity Place, New York City.
Fortune
9 Rockefeller Plaza, New York City.
Harvard Business Review
330 West 42nd Street, New York City.
Insurance
116 John St., New York City.
Insurance Advocate
123 William Street, New York City.
Insurance Field
234 W. Liberty St., Louisville, Ky.
Insurance Law Journal
27 Cedar St., New York City.
Journal of Accountancy, The
13 East 41st St., New York City.
Journal of American Insurance
919 North Michigan Ave., Chicago.
Journal of Business
5750 Ellis Ave., Chicago.
Journal of Commerce
63 Park Row, New York City.
Life Association News
11 West 42nd Street, New York City.
Life Insurance Courant
Oak Park, Ill.

Magazine of Wall Street, The
90 Broad Street, New York City.

N. A. C. A. Bulletin (Bulletin of the National Association of Cost Accountants)
385 Madison Ave., New York City.

Nation's Business
Chamber of Commerce of the United States, Washington, D. C.

National Underwriter
420 E. Fourth St., Cincinnati, O.

Spectator
Chestnut and 56th St., Philadelphia.

Standard
89 Broad Street, Boston.

Trusts and Estates
50 East 42nd Street, New York City.

Weekly Underwriter
116 John Street, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

ECONOMICS

American Academy of Political and Social Sciences, 3457 Walnut Street, Philadelphia.

American Accounting Association, University of Indiana, Bloomington, Ind.

American Chamber of Commerce for Trade with Italians, Inc., 105 Hudson St., New York City.

American Economic Association, Northwestern University, Evanston, Ill.

American Fair Trade Council, Inc., 11 West 42nd St., New York City.

American Home Economics Assn., 620 Mills Bldg., Washington, D. C.

American Institute of Accountants, 13 E. 41st St., New York City.

American Institute of Weights and Measures, 33 Rector St., New York City.

American Petroleum Institute, 50 W. 50th St., New York City.

American Retailers', Inc., 128 W. 31st St., New York City.

American Statistical Assn., 1603 K St., N.W., Washington, D. C.

Better Business Bureau, Nat'l., 405 Lexington Ave., New York City.

Chamber of Commerce of the United States of America, 1615 H St., N.W., Washington, D. C.

Controllers Institute of America, 1 East 42nd St., New York City.

Co-operative League of U. S. A., 167 W. 12th St., New York City.

French Chamber of Commerce of the U. S., 4 E. 52nd St., New York City.

General Society of Mechanics & Tradesmen of New York City, 18 W. 44th St., New York City.

Home Market Club, Inc., 38 Chauncy St., Boston, Mass.

Institute of Economics, 722 Jackson Pl., Washington, D. C.

Institute of Internal Auditors, 120 Liberty St., New York City.

International Accountants' Society, 3411 S. Michigan Ave., Chicago.

Mellon Institute of Industrial Research, 4400 Fifth Ave., Pittsburgh, Pa.

National Assn. of Cost Accountants, 385 Madison Ave., New York City.

National Assn. of Credit Men, 1 Park Ave., New York City.

National Assn. of Real Estate Boards, 22 W. Monroe St., Chicago, Ill.

National Bureau of Economic Research, Inc., 1819 Broadway, New York City.

National Foreign Trade Council, Inc., 26 Beaver St., New York City.

National Research Council, 2101 Constitution Ave., Washington, D. C.

National Wholesale Grocers' Assn. of the U. S., 60 Hudson St., New York City.

New York Stock Exchange, 11 Wall St., New York City.

Order of United Commercial Travelers of America, 632 N. Park St., Columbus, O.

BANKING AND CURRENCY

American Bankers Assn., 22 E. 40th St., New York City.

American Institute of Banking, 22 E. 40th St., New York City.

Investment Bankers Assn. of America, 531 First National Bank Bldg., 33 S. Clark St., Chicago, Ill.

National Assn. of Mutual Savings Banks, 60 E. 42nd St., New York City.

New York Clearing House Assn., 77 Cedar St., New York City.

United States Savings and Loan League, 221 N. La Salle St., Chicago, Ill.

INSURANCE

Actuarial Society of America, 393 Seventh Ave., New York City.

American Institute of Actuaries, 393 Seventh Ave., New York City.

American Institute of Marine Underwriters, 99 John St., New York City.

American Life Convention, 230 Michigan Ave., Chicago, Ill.

American Management Association, 330 West 42nd St., New York.

American Marine Insurance Syndicates, 99 John St., New York City.

Association of Casualty & Security Executives, 60 John St., New York City.

Casualty Actuarial Society, 90 John St., New York City.

Institute of Life Insurance, 60 E. 42nd St., New York City.

Life Insurance Association of America, 165 Broadway, New York City.

Life Insurance Sales Research Bureau, 115 Broad St., Hartford, Conn.

Life Office Management Assn., 110 E. 42nd St., New York City.

National Assn. of Life Underwriters, 11 W. 42nd St., New York City.

National Assn. of Mutual Casualty Cos., 919 Michigan Ave., Chicago, Ill.

National Board of Fire Underwriters, 85 John St., New York City.

National Bureau of Casualty & Surety Underwriters, 60 John St., New York City.

National Council on Compensation Insurance, 45 East 17th St., New York City.

National Fire Protection Assn., 60 Batterymarch, Boston, Mass.

National Travelers Aid Assn., 425 Fourth Ave., New York City.

Surety Assn. of America, 60 John St., New York City.

DIVISION XI

AGRICULTURE AND ALLIED INDUSTRIES

CONDITIONS IN AGRICULTURE

By Arthur P. Chew
Office of Information, Department of Agriculture

CROP, LIVESTOCK, AND DAIRY PRODUCTION

Crop and livestock production in the United States in 1945 continued to reflect the momentum of the war effort. Directed toward goals adopted before planting time, it resulted in the largest production of food grains on record, the second largest production of feed grains, and the second or third largest total of livestock products. Thus the output was far above the pre-war level, though slightly smaller than that of 1944.

The November crop report indicated a harvest nearly equal to the record harvests of 1942 and 1944. Frosts reduced the corn crop below earlier hopes, but it exceeded 3,000,000,000 bushels for the fourth successive year. Wheat production again exceeded 1,000,000,000 bushels, cotton, however, was a small crop. Total meat production was only about 2,000,000,000 pounds less than 1944's record total of 24,500,000,000 pounds; it exceeded the pre-war (1935-39) average by 6,000,000,000 pounds.

Dairy production exceeded 1944's high mark. The flow of milk in the summer was an all-time record; in the later months it was nearer to the stepped-up output of the latter part of 1944. Egg production, 5 per cent lower in the first 10 months than in the corresponding period of 1944, was nevertheless 36 per cent above the average of the last 10 years.

The small extent to which the year's total farm production fell below the wartime peak was attributable partly to weather conditions and partly to the necessity for adjusting livestock to available feed supplies.

Necessarily, the Allied victory over Germany and Japan altered food requirements—downward for military and lend-lease shipments, upward for relief purposes and for U. S. civilians. In view of these changes, which necessitated very careful appraisal, the officially recommended crop production goals for 1946 make a total acreage somewhat below the previous year's goals, but larger than the acreage actually planted in 1945. Like those of the war years, the 1946 goals are highly selective. For example, reductions of 10 per cent or more are advised for peanuts, soybeans, early potatoes, and burley tobacco. On the other hand, the goals for sugar, rye, cotton, some types of tobacco, and a number of other crops exceed the 1944 planted acreages.

Export demand and relief feeding will depend largely on the outcome of the financial arrangements that are now being made, while civilian requirements will be influenced by the national income, but the Government expects a large total demand. It believes, however, that the recommended pattern of production will tend to avoid both shortages and surpluses. Approximately accurate adjustment of crops to indicated requirements is likely to be important throughout the reconversion period, because farm-production capacity is above the estimated long-time demand and likely to increase further.

WARTIME CROP INCREASES

With 10 per cent fewer workers on farms and with machinery and other facilities scarce, the farmers in each successive full war year set an all-time high in food output. Food production on United States farms in 1944 was 38 per cent above the pre-war (1935-39) average, while the total agricultural production was 36 per cent higher. This production was not just any kind, nor was it simply the uniform projection of pre-war kinds. It was much different from the pre-war pattern—made so to suit special war requirements. Moreover, the increase was from a high pre-war level, that fed nearly 132,000,000 Americans and also provided large exports. As mentioned, the production reported for 1945 is only a little below the wartime peak.

In the most urgently needed crops the wartime increases were tremendous; for example, in the oil crops, which had to be expanded to effect the loss of imports from the Far East. Acreage of soybeans harvested for beans during the years 1942 through 1944 averaged 340 per cent of the 1935-39 level. Flaxseed acreage jumped to 240 per cent above pre-war. Livestock contributed a huge increase to the war-food supply—hog production at the peak in 1943 was 77 per cent above pre-war. In 1944 cattle and calf slaughter was 37 per cent above pre-war. Dairy production from 1942 through 1944 was 15 per cent above the 1935-39 average. Production of chicken meat increased by more than 50 per cent over 1939, and egg production by more than 40 per cent.

Farm efficiency was the main cause of the increases. True, the weather was favorable, but not more than a quarter of the increase can be attributed to the above-average weather that prevailed. Expansion of crop acreage was not an important factor. The wartime peak of planted acreage in 1944 was only 2 per cent above the pre-war average. Also the farmers got along with a 10 per cent smaller working force; they had to cope with a considerable loss of strength and skill among their workers, since women, children, and elderly men were supplanting able-bodied men. Machinery and certain supplies were relatively scarce. Farm production increased largely because farm people worked longer and harder, got extra work out of their machinery, and made greater use than ever before of science and modern technology, which under war conditions had unlimited scope. With the demand virtually insatiable, the limit of production was the limit of capacity. In food crops there were no restrictions, except those imposed by shortages of labor and materials.

IMMEDIATE DEMAND PROSPECT

The immediate outlook includes the assurance of a continued high demand for farm products. Shifts toward peacetime levels for most crops need not begin at once. Total U. S. military requirements for food in 1946 will be far below those of 1945, which included the needs of prisoners of war, of certain Allied troops, and of many civilians connected with military operations. Military responsibility for emergency feeding of civilian populations will decline: in fact, part of this responsibility has been terminated already. Military food requirements for 1946, if our total military strength drops to 3,000,000 by the end of the year, may be only one-fifth as great as those of the high point in 1945, but the offsets are substantial.

Total U. S. civilian food consumption is likely to increase considerably in 1946, as a result partly of demobilization and partly of the removal of foods from rationing. With rationing ended, except sugar, very large increases in the civilian consumption of formerly rationed items will probably occur, particularly of meats, canned fruits and juices, canned vegetables, various types of whole-milk, evaporated milk, and cheese. Greater civilian consumption of some canned items may partly reduce the consumption of these products in the fresh form, but the net result should be an increase in food consumption.

Butter consumption in 1946 is likely to increase as fast as the production permits; cheese consumption will undoubtedly rise, likewise evaporated milk consumption. In general, the demand for dairy products will be strong, though some changes will occur in the utilization of milk, especially for butter. Altogether the civilian consumption of milk and dairy products may amount to the milk-equivalent of 117,000,000,000 pounds—about 6,000,000,000 pounds more than the record consumption of 1942. Civilian meat consumption will rise substantially; on a per capita basis in 1946 it may approach 150 pounds, as compared with 1945's estimated 125 pounds. Consumption of poultry may be about the same as in 1945, while the consumption of eggs may drop from about 380 to possibly 335 per capita. Wheat consumption for food will probably not change, while the consumption of rice and dry beans may increase. Consumption of potatoes may decline. Consumption of sugar and probably of fats and oils will reflect shortage of supplies.

Estimating the foreign demand is more difficult. Already, foreign requirements have changed greatly, owing to the termination of the war and the ensuing termination of lend-lease. Hereafter, minimum shipments to former lend-lease countries will depend on the proportion of their foreign exchange which they devote to the purchase of U. S. food. Maximum shipments will be determined by whatever credits may be arranged. Shipments to these countries will probably be at a lower rate than those made from the production of 1944. Shipments for foreign relief purposes, through UNRRA, will depend largely on future U. S. appropriations for this purpose, since outstanding allocations of U. S. funds for UNRRA have largely been utilized. An additional $550,000,000 had been authorized, and was appropriated in December. Also, UNRRA was seeking an additional $1,350,000,000 in U. S. appropriations, which was authorized on Dec. 17, 1945. Most economists believe, however, that, for at least a year or two, the total export movement will not be much below the wartime level.

EXPORT AND IMPORT CONTROLS

Controls will still apply to food exports and imports. These are functions of the Department of Agriculture, the export controls under an Executive Order of Sept. 27 which transferred them from FEA and the import controls by action of WPB taken last spring. Throughout the war years these controls have been administered in line with recommendations as to food allocations. Foods that are available in sufficient quantities may now be exported freely. On certain products which remain under allocation, but for which the foreign demand is small, the export controls have been removed. With wartime food scarcity largely ended in the United States, the outlook is for a comparatively rapid return to peacetime methods in food exporting.

Import controls will be continued also, to assure appropriate distribution of world-food supplies and to protect public procurement programs for fats, oils and oil bearing materials, cocoa beans, and other important foods. Control over private importations of such items is frequently indispensable in some instances, to prevent the possible diversion to the United States of shipments intended for other areas. This is particularly true of fats and oils, which will be relatively scarce here for some time. Nevertheless, the number of products subject to the import controls has been reduced in the last year from about 175 to about 125. As supply conditions improve throughout the world, the food import controls can be relaxed along with the food export controls in line with the movement to facilitate international trade in general.

FARM EXPORTS UNDER LEND-LEASE

In the war years about 90 per cent of the United States exports were under Lend-Lease. From the beginning of Lend-Lease in March 1941, through 1944, over 61 per cent of the lend-lease food shipments went to the United Kingdom; about 29 per cent to Russia; about 5.7 per cent to the North African-Middle Eastern-Mediterranean area; 3.2 per cent to the China-India area; less than 1 per cent to other countries. Meanwhile, under reverse Lend-Lease, Australia, New Zealand, and other countries supplied considerable quantities of food to the United States armed forces.

Most of the fresh and cured meats, eggs, cheese, and miscellaneous dairy products exported by the United States went to the United Kingdom to offset the loss of imports of these products from Denmark, the Netherlands, and Switzerland. Quantities of canned meat, fats, and sugar went to Russia to help offset loss of those products following German occupation of the Ukraine.

FARM PRICE POLICY

Agricultural price policy for the reconversion period has been established by legislation, some of it enacted before we entered the war. For example, Public Law 147 approved July 1, 1941, directed the Secretary of Agriculture, whenever he found it necessary, to encourage the production of certain crops to support the prices thereof and to give advance notice should a downward adjustment be necessary later. This and other agricultural price legislation has since been modified in detail but not in principle. Briefly, it now provides that, for two years following designation of the end of hostilities, the Government will support prices to producers for basic crops at 90 per cent of parity; that it will support prices at not less than 90 per cent of parity for non-basic crops or Steagall amendment commodities requested in increased amounts during the war; and that it will give price protection to other products on a comparable basis to the extent that funds are available and producers are able to bring supplies into line with demand.

Obligations in connection with this price-support legislation, as stated in the language of the enactments, do not rest exclusively in the Government. Farmers, too, have an obligation, which calls upon them to support and take part in any measures that prove necessary for post-war readjustment in farm production. How much readjustment will be required is highly uncertain. It depends largely on what happens in the non-agricultural parts of the economy, especially on the state of employment that prevails and on the level of the national income, but whatever happens, the Department of Agriculture states, it should be recognized that the Government's price support commitment involves a reciprocal obligation on the part of farmers to do what is necessary in adjusting production as nearly as possible to requirements.

FARM CAPACITY AND LONGTIME NEEDS

The Department of Agriculture recently cooperated with state agricultural agencies in an attempt to estimate what changes in the level and pattern of production, and in farm practices, would be best for farmers over a period of years from the twofold standpoint of current income and maintenance or improvement of the farm plant. The investigators suggested crop land at about the 1944 level. With improved practices, this acreage would result in a level of production considerably higher than that of 1944. Necessarily, it must be balanced with an increase on the market side. Food needs for relief are urgent. As relief needs taper off, food consumption in the United States can be increased, provided the purchasing power of consumers holds up. This increase in consumption will be largely in foods, such as, milk, meat, fruits, and vegetables, which require a large amount of farm resources per unit of production and utilize a relatively large part of the farm plant. Increased domestic consumption within the next five or six years could fill the gap between wartime production and wartime domestic consumption.

WORLD FOOD CONDITIONS

World supplies of nearly all major food products will be extremely short during the coming year. Production of wheat throughout the world in 1945-46 may be about 7 per cent below pre-war, but the exporting countries have large carryover stocks. Total world supplies will be about equal to the pre-war average. They will provide enough for minimum relief needs, however, only if the shortage countries continue their high extraction rates for flour milling, and if the world's diversion of wheat from food to feed uses does not run high. Liberated and deficit rice areas of Asia face a serious rice shortage. Sugar production in 1945-46 will be 13 per cent below pre-war but slightly larger than the crop of 1944-45. Total supplies will be smaller because operating stocks have been reduced. The fats and oils supply will be lower than in the previous year largely because of sharply reduced hog production in the United States, Canada, Argentina, and Europe. Liberation of the East Indies and of Manchuria promises some early relief of the world shortage of fats and oils. Some supplies should be available from these areas as soon as shipping can be spared.

Meat products on a world basis will be about the same as in 1944-45, and considerably short of pre-war levels. Moderately increased production of meats in New Zealand and Argentina is about offset by further slight declines in the United States, Canada, Europe, and Australia. Several countries in northeastern Europe are trying hard to increase their livestock production, subject to handicaps such as difficulty in importing feeds and an increased diversion of food grains and potatoes to food uses. Fish supplies remain much below the pre-war level, though recently the world-catch has been increasing and further increases are in prospect. World milk production in 1945 may be about 5 per cent below pre-war, owing to a sharp decline in Europe's production. Consumption of fluid milk and of dairy products other than butter will be above pre-war, while the quantity of milk converted into butter will be somewhat smaller. The demand for all dairy products is strong, because of the general shortage of other foods. Poultry numbers have declined heavily in Europe.

Ultimately, additional or substitute market outlets for U. S. products will be necessary, since the relief demand is by its nature transitory. These new outlets must be sought in expanded industrial uses for farm products and in large commercial exports. Expanded industrial utilization of farm products presupposes high industrial activity, just as increased domestic food consumption does, but it also depends on technological advances and on the development of pricing policies that will encourage new industrial uses. To find a market in industry, farm products must sell at prices that will make them the cheapest source among alternative raw materials.

Long-time export outlets for farm products, states the Department of Agriculture, will depend on the kind of a world we help to build. As the world's most powerful nation, we have a large responsibility for developing adequate world trade arrangements. Possibly we can exceed the pre-war volume of exports in some of our important farm products, if we are willing to accept payment in the form of commodities from other countries. Our non-farm exports will help farmers. Part of the domestic market for food products comes from exports of manufactured products, the making of which employs workers and distributes buying power.

WHEAT IN POST-WAR U. S. FARMING

Major problems will have to be solved in order to fit wheat into the post-war world. In the war years the demand for wheat as food, as feed for livestock, and as raw material for industrial alcohol was high. With the fighting ended, the demand may fall off, and we may have more wheat than can be moved at prices satisfactory to growers. Price support will continue into the post-war years, but whether other measures will eventually be necessary, such as acreage limitation, extensive subsidization of exports, some two-price plan, or some shift from supported to competitive prices accompanied by income or conversion payments, is matter for discussion.

Conditions in the next year or two may keep our wheat acreage at about what it is now. Our stocks of wheat, likewise those of other wheat-exporting countries, have been reduced considerably. In the 1945-46 marketing year, world trade in wheat may absorb most of the remaining surpluses in the wheat exporting countries. The price of wheat in the United States in 1945 was the highest since 1925; it was considerably above that of any other exporting country. Temporarily, we exported flour under subsidy, as authorized by Section 32 of Public Law 320, 74th Congress, as amended. Also, we exported some wheat grain under subsidy. Subsequently, military and relief requirements increased the overseas requirement. These commitments may maintain export wheat prices through another year at least. Eventually, however, the export-subsidy authorization may have to be applied increasingly, since maintenance of a large wheat acreage for several years will necessarily raise surplus-disposal problems.

As a broad objective, the idea of parity returns for wheat farmers has been accepted. Various approaches to this general goal are possible. One method for giving parity returns to farmers calls for price support at parity levels. Without acreage restrictions, this would result in surpluses. Another possible policy would offer parity prices with production control, and perhaps also with marketing quotas. Another plan would maintain wheat at parity or near-parity for food uses in the United States but would put wheat for feed and for export on a free market basis. This would be a two-price system. It would have a double purpose—to maximize returns to growers and promote full utilization of wheat resources. Farmers would get a blended price, which would be less than parity. How much less would depend partly on the ratio between the domestic food use and the non-food uses of the crop, and partly on the world price level. The plan would not involve crop control.

Still another possibility would be a return to free or world market prices, with a wheat conversion program to absorb the shock. Proposed features are: (1) an increase in the average size of operating units, promoted with credit and other facilities; (2) wider use of up-to-date machinery; (3) development of adequate conservation practices; (4) combination in certain areas of wheat production with range livestock operations; (5) government payments offered for the conversion of low-yielding wheatland to grasses; (6) production of wheat for use as a livestock feed, or alternatively the production of feed crops where they outyield wheat on a feed-unit basis; and (7) adoption of a crop insurance program with premium adjusted to individual farm risks. Ultimately such a program would put United States wheat-growing back in world competition, where its earnings would depend on its relative efficiency.

COTTON IN THE FARM ECONOMY

More than half our farm people live in the thirteen Southern States, and about half the South's 3,000,000 farm families get most of their cash income from cotton. These southern farm people, however, have among them less than one-third of the nation's crop land; pressure of population upon the land supply is greater in the South than in any other section. Moreover, they receive only about one-fourth of the nation's farm income.

The foreign aspect of the cotton problem demands attention. Heretofore in peacetime we have depended upon countries overseas to take half or more of our crop each year. When our customers abroad have taken less, our stocks have piled up. It has been obvious in consequence that we could not solve the problem at home unless we solved it abroad. The alternative —to cut back our production to fit our own consumption—was inacceptable.

This is where the United States

stood when war came to Europe in 1939. The war almost suspended our cotton export trade as such. We continued, however, to send some cotton abroad as lend-lease aid and greatly increased our own mill consumption to supply the United States armed forces. In this way we disposed of our wartime crops. Our surplus of cotton, though it remained large, did not materially increase, but now we again face the cotton export problem in a form more difficult than any hitherto known. Overseas customers who are able to pay for our cotton must be found.

This Government has been quick to assure the governments of other nations that it seeks no unfair advantage and wishes only to offset its handicaps in the international market. These have partly resulted, it should be noted, from measures the United States has taken internally to improve cotton prices, measures that have benefited foreign as well as American cotton growers. Hence, while insisting upon the right to retain its domestic and export programs, it has offered to negotiate an arrangement with other countries by which they may be protected from untoward or unintended consequences. The arrangement would provide for an equitable sharing of the international trade and for concerted action in dealing with the surplus. Preliminary discussions are under way.

Basically, the South wants a method whereby it may continue to sell cotton both at home and abroad, and at the same time to earn a satisfactory farm income. Between the wars it lacked such a method; it had to depend on price-supporting measures which involved an increasing loss of trade, especially in the export field. Permanent cotton policy must avoid this dilemma; it must support southern farm incomes by means that do not involve a loss of markets.

Necessarily, the policy must aim at many other objectives too, such as continued progress in farm technology, soil conservation and soil improvement, the provision of better marketing facilities, and advancement in rural health, rural housing, rural electrification, and rural education. It is particularly important to have maximum farm efficiency, which does not necessarily mean blind maximum production of every product in every area. It does mean relatively low-cost production, without which good prices may not ensure good incomes. Better seeds and stock, better machinery, more lime and fertilizer, and other aids to high production per acre and per man-hour do not conflict with the desire of farmers to obtain good prices for their products. On the contrary, technical farm efficiency makes price maintenance easier, because it accords with efficient total farm management, which includes the adjustment of crops to demand.

PARITY FOR PART OF THE COTTON CROP

One possible approach to the cotton problem would maintain a parity price only for the domestically consumed portion of the crop. For the export portion the growers would receive the world price. This would be arranged pro rata. For example, if two-thirds of the crop entered domestic consumption and one-third went abroad, each grower would receive parity for two-thirds of his individual production and the world price for the remainder. Practically, the farmer would receive a blended or average price, which would be lower than parity unless the world price equalled parity. Ordinarily, there would be no restrictions on the amount he could produce. Surpluses would not accumulate as long as the world market took all we offered at the world price.

POSSIBLE SHIFT TO WORLD COTTON MARKET BASIS

Another approach would hitch the domestic price of cotton to the world price. Under this condition the average price of cotton would be lower than what it would be were farmers assured of parity for the whole or even for part of their cotton production. As compensation it has been suggested they should have certain government payments to maintain their incomes, along with facilities for obtaining government loans, to cope with short-term fluctuations in the world price.

Still another proposed approach advocates extensive agricultural conversion in the cotton South. This procedure, too, would allow the domestic and the world price of cotton to be the same, and would use government payments to maintain the income level of the cotton farmers. In this case, however, the payments would extend only over a stated period. One of the purposes would be to help some cotton farmers change from cotton partly or wholly to other lines of production, while other cotton farmers improved their technique and lowered their costs of production sufficiently to be able to cope with world competition at world prices. Along with the conversion to a more diversified southern agriculture would go vigorous efforts to promote industrialization and wider markets in the region.

PROBLEM OF THE FEED GRAINS

The feed grain situation during 1945 was one of scarcity amid plenty. In other words, the supply of feed grains and other feeds was large as compared with pre-war years; but the demand for these products was large also. At the prevailing high prices, it exceeded the market supply, particularly of corn, throughout most of the year. Marketings of feed grains were larger than usual, but purchasers would have taken still larger quantities had the supply in commercial channels been greater.

The disappearance of feed grain, though heavy during the 1944-45 season, was not quite as heavy as in either of the two previous seasons. This was the result principally of reductions during the season in the number of hogs and chickens, but the rate of feeding per unit of livestock produced was higher than in the previous year and it produced record yields of livestock and poultry products. For example, the hogs slaughtered under Federal inspection during 1945 averaged about 260 pounds, the heaviest on record. Milk production per cow was at a record level and likewise egg production per layer on farms.

Meantime the utilization of feed grains for food and industrial uses was greater than in the preceding war years and greater than that in most earlier years. The total use of corn, oats, barley, and sorghum grains for seed, human feed, industry, and exports amounted to nearly 15,000,000 tons in the 1945 season, 2,000,000 tons more than in 1943-44, but despite the heavy feeding and the increased use of feed grains for food and industrial purposes the stocks of old crop grain on farms at the end of the 1944-45 crop year increased. With large production again this year, the domestic supply of feed grains for 1945-46 (not including wheat and rye for feed) will be larger than it was in 1944-45.

Post-war handling of feed grains poses problems sharply different from those presented by the great export crops. Agriculture produces feed grains, principally corn, feed-wheat, barley, oats, and grain sorghums, for its own use, either on the farms that grow these crops, or on farms and ranches whose operators purchase feed supplies. In other words, the market is domestic. Largely, this is also true of the beef cattle, dairy cattle, sheep, and poultry that consume the grains, and to a considerable extent it is also true of hogs. Hence in this connection, the difference between domestic and world prices is not vitally important: it does not suggest the use either of any two-price system, or of any program to make American feed grain prices fully competitive in world markets.

Another reason exists for shaping feed grain policy differently from that of other basic crops. Long-time conversion in the cotton and wheat areas seems to call for some shift out of cotton and wheat. Alternative enterprises would be largely feeds and livestock. Obviously, enhanced regional competition might result; this would not be serious in times of active business and high consumer-incomes, but would be bothersome in a depression. Conversion can not leave the feed and livestock industries where they may have to "hold the bag" unaided; it must develop protective features, such as will come into operation promptly and even automatically whenever supply conditions get out of hand. It is too early to specify details; but the Department of Agriculture believes we shall want a program to maintain high domestic consumption of livestock products, along with loan and storage facilities designed to stabilize feed grain supplies on the principle of the ever-normal granary.

SUGAR

In meeting sugar requirements, 1945 was the most difficult of the war years. Consumption under our sugar rationing program in 1944 was about 800,000 tons above the allocation for civilians. The Cuban drought, which began in the fall of 1944, continued until June 1945, and, with other factors, resulted in a 1945 Cuban crop approximately 1,500,000 tons less than the total production in 1944, including the equivalent of 900,000 tons of 1944 sugar diverted to the production of invert molasses. Then came the end of the European war and the ensuing increased relief and other demands.

The situation was both critical and widely misunderstood. Accordingly, a special House committee investigated it, and on May 21, 1945, issued a report which analyzed the main causes of the shortage and offered recommendations for dealing with it. Among immediate causes of the trouble, the report emphasized four factors: (1) Diversion of much 1944 Cuban sugar to the production of alcohol for the synthetic-rubber program; (2) drought in the Caribbean area which reduced the 1945 over-all production in that area by perhaps 1,250,000 to 1,500,000 tons below expectations; (3) European relief demands; (4) excessive distribution of sugar in the United States in 1944.

Principal recommendations of the committee, which have since been implemented in so far as they were not effective previously, were as follows: (a) Establish authority and responsibility for procurement, transportation, pricing, and distribution under one coordinating head; (b) open negotiations immediately for the purchase of the 1946 Cuban and Puerto Rican sugar crops; (c) tighten rationing controls; (d) reexamine allotments to different classes of industrial users; (e) review and adjust foreign commitments to safeguard minimum United States civilian use.

Liberation of the Philippines did not ease the situation. In fact, the sugar industry there proved to be in such a condition as to forbid the hope of material production until late 1947 or early 1948. Before Pearl Harbor the United States depended upon the Philippines for about 1,000,000 tons of sugar each year; consequently, the outlook was for continued sugar rationing in the United States in 1946, although on a somewhat more liberal basis.

In the next year or two the United Nations must find means to increase the sugar supply greatly and at the same time to prevent a recurrence later of great maladjustment between production and demand such as occurred in the 1930's, and led to great distress in sugar producing areas of the world with the enactment of restrictive legislation in this and other countries. Sugar is raw material for many industries. The industrial economies of the United States, the United Kingdom, and western Europe use it in tremendous quantities. The shortage aggravates their reconversion difficulties. Soft drink plants, bakeries, and candy factories can provide employment only if they can obtain sugar. They must have sugar, but the programs that get it for them must look ahead, and take precautions against going to the opposite extreme. This is vital to countries like Cuba and Puerto Rico, whose welfare depends more on the price of sugar than on anything else.

WOOL

The United States is on an import basis for wool, and changes in domestic prices normally follow changes in foreign prices quite closely, although domestic prices are maintained at a much higher level than foreign prices by the duty of 34 cents a pound clean content on most imports of apparel wool. At present, prices of domestic wool are being supported by the CCC purchase program at a level considerably higher than the duty-paid prices of comparable foreign wool. Consequently, mills are using domestic wool only where specified in military orders and are using imported wools for other orders. Although military orders have been large, domestic wool is accumulating in the hands of the CCC and is likely to accumulate at a more rapid rate as military orders drop. Unless prices of foreign wool advance, some means must be found for restoring more normal price relationships between domestic and imported wools in the domestic market.

Even with government support, prices received by United States farmers for wool since 1943 have been lower compared with pre-war (1935-39) prices, than prices received for domestic farm products in general. Sheep numbers have declined to the lowest level since 1928. This has not only resulted in a smaller wool production but production of lambs—which are needed in the nation's meat supply—has declined sharply. Without government support of wool prices, production of wool and of lambs probably would have declined much further.

TOBACCO

With the easing in shipping conditions to Europe, tobacco exports rose sharply during the year to a level near the biggest years before the war. Mainly this movement represented a change in the location of storage from the United States to the owning countries, of the substantial quantities of tobacco accumulated by foreign buyers during the war.

Since the United States is the largest existing source of the kinds and qualities of tobacco customarily desired by many importing countries, a continuing high level of tobacco exports from the United States is expected until low or exhausted stocks abroad have been replenished. When foreign stocks are replenished, however, high prices for tobacco may impede movement from this country into customary export channels. At the same time a continuation of wartime prices for U. S. tobacco would probably accelerate expansion of sources of supply outside the United States, including possibly the development of new sources.

Tobacco producers entered the post-war period with a greatly expanded market for their product. Much of the sharp increase in the domestic market during the war period likely will be maintained. The volume of exports will depend not only upon the price and availability of the leaf but also upon the many complicated factors in world policy on international trade. No segment of American agriculture has a greater stake in the free flow of goods among nations.

OPPORTUNITIES IN FARMING

Currently our farm production is about 25 per cent greater than it was in the late 1930's; it is about in line with the per capita food consumption to be expected with full employment and the equivalent of pre-war farm exports. In the next half century our population is likely to increase by at least one-fifth. As a result, we can expect a corresponding increase of one-fifth in market outlets for farm production. Changes will undoubtedly take place in farm exports and also in the industrial utilization of farm products, but these we can discount, because they will affect a relatively small proportion of the total. What will the indicated probable increase in the demand mean in terms of farm opportunities—in terms of opportunities to farm or to hold farm jobs?

Between 1880 and 1910 our total population increased 84 per cent; simultaneously, our farm production increased 82 per cent. Population and farm production rose in nearly the same proportions from 1910 to 1940. Between these years the population-increase was 43 per cent, while the farm production increase was 38 per cent. In each of these two periods, despite a slightly greater increase in population growth than in farm production, the level of food and fiber consumption per capita in the United States advanced somewhat. This was possible because farm exports gradually declined. The close relationship between population and farm production reflected the fact that food consumption, which accounts for more than 80 per cent of the total farm output, is very stable, but we can not infer how many farmers and farm workers we need simply from the demand for farm products.

Another important factor, namely, the efficiency of farming or the output per farm worker, must be considered. This has been advancing rapidly and it is still advancing. Thus farm production may keep in line with total population growth without providing more opportunities for farmers and farm workers. In fact, it may do so with an actual decrease in the number of such opportunities. The relationship between production and opportunities, unlike that between population and production, is by no means close. On the contrary, it is divergent. Thus from 1880 to 1910 the United States increased its farm production 82 per cent with an increase of only 35 per cent in the number of workers in agriculture. In the period 1910 to 1940 it achieved a 57 per cent increase in farm production with an actual decline in the number of farm opportunities. This decline was approximately one-fifth.

Both farm production and farm employment can expand if the population increases at a faster rate than that at which farm technology advances, but we are not in that position any longer. We are in the opposite position, in which technological advance, as reflected in farm worker productivity, is faster than population growth. This means that we can achieve an expanding farm production with no expansion and in fact even with a decrease in farm employment. The 21 per cent decline that occurred between 1910 and 1940 in farm employment had an offset, from the standpoint of production, in a 73 per cent increase in the productivity of the average farmworker. Since productivity per man engaged in agriculture is still increasing faster than total population growth, a continued slow decline in farm worker opportunities must be expected.

FARMS FOR VETERANS

Again the country faces the task of finding jobs for its war veterans. Today, as after other wars, many veterans are interested in going into farming. After the First World War there were some suitable new areas open for settlement although many new land farms were settled and land was plowed only to be abandoned later because cultivation of it did not pay. Today the outlook for farming opportunities is different. Since occupation of the best of the western land, opportunities for beginning farmers have been limited either to farms for sale or rent in established communities, to limited areas that can be brought into irrigation or cleared or drained for farming, or to less desirable land that was passed over or abandoned by earlier homeseekers, or to land more costly to develop and operate.

A survey made by the Army shows that about as many service men are thinking of farming as originally left the farms to enter the service. This survey and letters received by government agencies indicated that many of these veterans do not have enough money with which to buy and equip a good farm. Some of those interested in farming lack practical farm experience and some are physically handicapped.

In all, it is estimated that approximately 1,000,000 men in the armed services are likely to turn to full-time farming as a post-war job. Another half million are thinking of part-time farming to supply part of the family living while they engage in some other regular work. Of those interested in full-time farming, nearly two-thirds, or 600,000, say either that they have in mind farms to which to return, that they own farms, that they can return to family farms, or that they know farms they think they can rent or buy. About one-third, or 300,000, say they will have to look for farms. Only 100,000 appear interested in working on farms for wages. This indicates that the task of finding enough suitable farms for veterans wanting them will be a sizable job.

Current estimates of farm land sales, farm rentals, and farm vacancies created by retirement, by changes to other jobs, and by death, indicate that about one farm in seven will be available for a new operator in the first five years after the war—in other words, about 800,000 farm openings of all kinds and sizes. Only about one-half of these farms are adequate or can be made adequate by farm improvement, by adding more land, or by a combination of the two. Many of these farms are clearly too small, or have insufficient improved land and improvements, to provide an income sufficient for a family. Some are only suitable for part-time farms and rural residences for workers who earn incomes off the farm. Other farms not adapted to part-time farm and residential use need to be combined with adjoining farms to make more adequate units.

In addition to existing farm openings, possibly 40,000 to 50,000 new farms can be created to the full-time operating stage by irrigation and drainage in a similar period of time. If all suitable military land is declared surplus, possibly as many as 10,000 farms will be available. Of course, over a longer period several thousand additional new farms can be developed by various means if needed. Present authorizations and plans for irrigation, flood control, and drainage, if carried out, will make it possible to develop 75,000 to 100,000 new farms over a 10- to 15-year period. These developments will also provide supplemental water and protection to many existing farms.

FARM INCOME IN 1945

Cash receipts from farm marketings in 1945 may total about $20,400,000,000—3 per cent more than in 1944. The income from crops is expected to be 5 to 10 per cent above the previous year. On the other hand, the income from livestock and livestock products will reflect decreased sales, particularly in hogs.

In volume, the marketings (crops and livestock combined) will be about the same as the record total of 1944. It will include, however, an unusually large proportion of crops from the previous year's harvests. Comparatively heavy marketing of 1944 crops in 1945 resulted from several factors, notably the late maturity of 1944 cotton, the high moisture content of much 1944 corn, the shortage of rail transportation, and administrative orders that delayed tobacco marketings.

Total marketings of crops in 1945 were about 7 per cent greater than those of 1944, while marketings of livestock and livestock products were smaller by about the same percentage.

Prices received by farmers in 1945 may average about 2 per cent higher than in 1944. Livestock and livestock products will show a greater gain than crops.

Cash receipts from crops showed consistent monthly gains over 1944 up to and through September, especially in the receipts from feed grains; corn returned a higher income than in 1944; the receipts from oats rose sharply because of the large 1945 crop. Income from wheat increased owing to the sale of parts of two record crops at relatively high prices. Income from vegetables increased substantially; truck crop prices during June, July, and August showed greater gains over 1944 than any other group of prices.

Cash receipts from livestock and livestock products increased only slightly. Despite a small percentage gain in hog prices, income from hog marketings declined sharply, as a result of drastically reduced sales. On the other hand, income from cattle and calves was higher than in 1944 because marketings were about the same while prices were up slightly. Poultry and eggs returned an increased income, mainly as a result of higher prices. Dairy products earned slightly more income for farmers as a result of slightly larger production.

Net returns to farmers reflect production expenses as well as cash receipts. Total expenses of farm production for 1945 may be 4 per cent above those of 1944, with increases relatively large in labor costs and in maintenance and depreciation. Wages were up about 8 per cent, and the value of perquisites to hired workers was up slightly, in line with the higher value of farm products. The total costs of hired labor in agriculture, for wages and perquisites, seemed likely to be about 7 per cent higher than in 1944. Expenditures for purchased feed declined.

Charges for maintenance and depreciation increased partly because farmers had more opportunity to replace outworn and outmoded equipment. Expenses of maintenance and depreciation may be from 5 to 10 per cent above 1944. Farmers are eager to replace old equipment, and also to buy fertilizer and lime in increased quantities as supplies become available.

Taxes and mortgage interest showed little change from 1944. Local tax assessments have shown little change throughout the war period, while farm indebtedness has decreased.

Analysis of the receipts and the expenditures indicates the net income to operators in 1945 may be about 3 per cent higher than in 1944. Value of products consumed in farm homes may be slightly higher; the rental value of operators' dwellings may show a small increase, in line with some rise that has taken place in real estate values; government payments will be about the same as in 1944.

AGRICULTURE'S BALANCE SHEET

As measured by the dollar value of its physical goods, agriculture has increased from a $49,000,000,000 industry to a $74,000,0000,000 industry during the five years ended Jan. 1, 1945. During 1944 the increase was from $69,000,000,000 to $74,000,000,000. Financial assets such as currency, deposits, and war bonds increased from an estimated $5,000,000,000 on Jan. 1, 1940 to $13,000,000,000 on Jan. 1, 1944 and to nearly $17,000,000,000 on Jan. 1, 1945.

On the other hand liabilities have decreased throughout the five-year period. Farm-mortgage indebtedness, estimated at $5,271,000,000 on Jan. 1, 1945, was $364,000,000 less than a year earlier and $1,316,000,000 below the total on Jan. 1, 1940. The 1945 figure was less than one-half the all-time peak in 1923 and the lowest since 1916. Non-real-estate indebtedness (excluding non-recourse loans guaranteed by CCC) has also shown a slight decline.

With assets growing in value and liabilities shrinking, proprietors' equities obviously have benefited greatly. The proprietors held a 99 per cent interest in the physical and financial assets associated with agriculture on Jan. 1, 1945. This proprietary interest totaled $81,820,000,000 or $8,447,000,000 more than a year earlier and $38,036,000,000 more than five years earlier.

The wartime rise in prices has been the chief factor in the increase in assets. Real estate which accounted for 55 per cent of total assets on Jan. 1, 1945 increased in value from $33,642,000,000 in 1940 to $50,295,000,000 in 1945, an increase of about 50 per cent. Value of livestock and crop inventories has been influenced both by physical increases and higher prices. The index of prices received by farmers for farm products averaged 195 (1910-14=100) in 1944 or about 1.6 per cent higher than in the previous year.

The increase in value of physical assets during 1944 was largely the result of a further $4,700,000,000 rise in land values. A $394,000,000,000 increase in machinery and automobiles and a $250,000,000 increase in crops on hand were almost exactly offset by a $668,000,000 decrease in the value of livestock.

CROP INSURANCE

Federal crop insurance was not

available on the 1944 wheat and cotton crops or the 1945 winter wheat crop because the 1944 and 1945 agricultural appropriation acts provided funds only for liquidation of the insurance then outstanding. The Federal Crop Insurance Act was amended in late December 1944 to change certain of its provisions and to repeal the crop insurance provisions of the 1944 and 1945 Appropriation Acts. Thus crop insurance is again available to wheat and cotton producers. It is also available for the first time to flax producers. Offered generally on a nationwide basis on these three crops it had to be restricted to spring-planted crops in 1945, because fall crops had been planted before the legislation was amended.

The amendment to the Federal Crop Insurance Act authorized trial crop insurance on other commodities in a limited number of representative counties, but limited it in 1945 to corn and tobacco. Each year thereafter a trial crop insurance may be started on not more than three additional commodities. The purpose is to determine the most practical plans, terms, and conditions. Limited on each commodity to a period of three years and to 20 counties, the plan for trial insurance gives an opportunity to gain experience on a volume of business and a contingent liability kept at a low level.

On all the commodities covered, the insurance is against losses owing to unavoidable causes. On wheat, cotton, and flax the insurance is against loss of yield with coverage optional at either 75 per cent or 50 per cent of the long-time average yield for the farm. If the yield in the year of insurance is less than the coverage, the insured farmer is indemnified for the shortage. Under this plan, the amount of coverage, the premium, and the indemnity are determined in commodity units, such as bushels of wheat or pounds of cotton. Payment, however, both of premiums and of indemnities, is usually made in the cash equivalent at the current price.

FARM HOUSING

On farms in this country there are about 6,500,000 dwellings, and a recent analysis by the Department of Agriculture, in cooperation with the Bureau of the Census, has divided them into three main groups—dwellings that are acceptable, those that need extensive repairs or improvements, and those that are in such bad shape or are so small that they ought to be replaced. One-third are fairly satisfactory, one-third need major improvements, and the remaining third should not be used for human habitation. In short, some two-thirds of the nation's farm families are ill-housed. The situation reflects the adverse influence of the war, which hampers building and repair operations; nevertheless, it is not to any great extent a product of the wartime shortage of labor and materials. On the contrary, it is an old evil, with roots in the same causes that have impaired other aspects of farm life and given rise to calls for various farm programs.

Farm operators and their families occupy about 5,000,000 of the 6,500,000 total; hired farm workers, urban workers, and retired farmers occupy most of the remainder. Farm operators occupy the great majority of the acceptable dwellings. Nevertheless, many farm operators have very unsatisfactory housing, about half of them in structures that could be repaired and the rest in structures beyond repair. As for certain other occupants of farm dwellings, particularly the hired labor group, it must be said that, broadly, their housing is deplorable, though with scattered exceptions. Particularly bad in some sections are the tarpaper shacks and other wretched shelters of migrant workers. Most migrant farm workers live in dwellings far below urban standards, but the average even for settled farm families is not up to that of city dwellings.

The Department of Agriculture and the National Housing Agency agree that rural and urban people are entitled, equally on the basis of need, to help from the National Government in efforts to improve their housing standards. They agree, too, that the relationship between farm housing and other farm programs is extremely close. On two other important points the two organizations agree: (1) as much as possible of the required improvement in rural housing should be undertaken by private enterprise; (2) nevertheless, the Government has an ultimate responsibility for helping all families to achieve adequate housing. All types of possible programs, however, will require a large degree of local initiative and responsibility. Eventually, long-range housing projects must be able to stand on their own feet. Hence the use of subsidies, when necesssary, should be temporary and should be designed to remove the need for further subsidies.

RURAL HEALTH CONDITIONS

Alarming deficiencies in rural health resources are an increasing source of concern to all interested in rural welfare. The number of physicians available to serve the population on farms and in small towns is steadily decreasing. There are too few dentists, nurses, druggists, health officers, sanitarians, laboratory technicians. More than 1,200 rural counties lack approved hospital facilities. These deficiencies reflect the low medical purchasing power of rural areas. Associated with them, and with related economic factors, is a heavy burden of preventable illness, unnecessary disability, and premature death among under-served rural people.

Post-war planning, looking to fundamental improvements in rural health and sanitation, has progressed rapidly during the past year. The working Group on Health and Sanitation of the Department of Agriculture's Interbureau Committee on Post-War Programs is publishing a report on rural health problems and plans for improvement of medical services and facilities. This report sets forth five objectives to be achieved in the field of rural health, including easing payment of medical bills, constructing hospitals and other facilities, providing more medical personnel, expanding public health services, and elevating the quality of rural medical care and related services.

Planning and legislation concerned with one or all of these objectives are going forward in most of the states. There have been many conferences of state rural health committees on post-war problems, and several regional health conferences. Regional Post-War Planning Committees, representing the Department and the Land-Grant Colleges, have held conferences, devoted wholly or partly to rural health in Atlanta, Lincoln, Dallas, San Francisco, and Washington, D. C.

CROP MARKETING BY AIR

Aviation will influence agriculture in post-war years. Even in indirect ways the influence will be considerable; for example, air transport by sea and land will affect highways, railways, and sea ports. As the air-lines attract passengers, the older forms of transport will have to depend more on freight, perhaps with repercussions both on their charges and on their facilities. New areas may have to wait longer for railways. Ocean shipping will have to be adjusted to the new competition. The total effect on the economy, and therefore on agriculture, will undoubtedly be tremendous. In addition, aviation will affect agriculture directly through the opportunities it will offer for the speedy long-distance transport of perishables. In fact, here is agriculture's principal immediate interest in air transportation.

Air-freight transportation permits the long distance shipment of fully matured and ripened products, and makes them available to markets that otherwise could not be reached. Other forms of transportation, even over much shorter distances, often oblige growers to ship their products at various stages of unripeness and consequently of inferior quality. For example, perishables harvested in California, if shipped by air freight, could be retailed in eastern markets within 24 hours, as compared with the 10 days or more required in rail-freight movements. Probably surplus war-cargo planes will be available to move food when the war is over, though the available cargo will not be enough to utilize any large proportion of these planes.

COTTON AND GRAIN CROPS

By Paul L. Koenig

Chairman, Crop Reporting Board, Department of Agriculture

GENERAL—COTTON

The smallest quantity of cotton produced in any year of this century, with the exception of the 1921 crop, was harvested in 1945. This low ebb came from the smallest acreage planted since 1885. The small acreage reflects the reduction in the labor force, the strong competition for acreage from food, feed and higher yielding oil crops, and adverse planting conditions. The season was relatively unfavorable, resulting in heavier abandonment than usual. In spite of the unfavorable growing conditions, yields per acre were relatively high. This was largely because, in reducing acreage, growers utilized the better cotton land. Improved varieties and cultural practices also contributed to the yield increase. The crop was late, as wet and cloudy weather promoted excessive plant growth and tended to delay the opening of bolls, and the rate of ginning was far below average.

GENERAL—GRAINS

American agriculture again achieved outstanding production of grains and other field crops in 1945, despite the serious difficulties encountered at time of planting and again at harvest time. The national crop production in 1945 was the third largest of record.

Paralleling this huge total output, and contributing heavily to it, the eight food and feed grains aggregated 154,462,000 tons in 1945, closely crowding the 1944 total of 154,569,000 tons. This output was 99.6 per cent of the all-time record of 155,017,000 tons produced in 1942. Wheat, oats, and rice established new production records, while corn contributed a crop of 3,000,000,000 bushels.

Total production of the so-called food grains—wheat, rye, rice, and buckwheat—in 1945 was 1,226,358,000 bushels, compared with 1,175,004,000 bushels the previous year and the 10-year (1934-43) average of 889,981,000 bushels. National production of the feed grains—corn, oats, barley, and sorghum grain—totaled 4,925,633,000 bushels, 2 per cent more than the 1944 production and 28 per cent above the 10-year average.

Continued downward trends in acreage are accountable for a 1945 rye crop only 64 per cent of average and a barley crop 97 per cent of average. Sorghum grain production was 36 per cent above average but 47 per cent below the 1944 record crop. Buckwheat production was cut sharply by adverse weather conditions at harvest-time.

COTTON ACREAGE

The 18,157,000 acres of cotton in cultivation in the United States on July 1, 1945 was the smallest acreage planted to that crop since 1885. The 1945 acreage was 11 per cent below the 20,354,000 acres planted in 1944, 31 per cent below the 10-year (1934-43) average, and only 39 per cent as large as the peak of 45,968,000 acres planted in 1925. Planted acreage in 1945 was below that for 1944 in all cotton-producing states except New Mexico, Arizona, and California, in which states moderate increases were registered. In these three states practically all of the cotton is grown under irrigation.

The continued downward trend in cotton acreage is the natural result of reduced labor forces coupled with strong demands for maximum production of feed and food crops and of higher yielding oil crops. Furthermore, weather conditions in some of the important cotton-producing areas were unfavorable for cotton planting. Floods during the early spring of 1945 along the Mississippi River delta inundated large acreages of lands normally planted to cotton, and in many instances the waters did not recede early enough to permit growers to prepare seed beds and plant their crops. These floods and continued heavy rains resulted in a Delta acreage somewhat below that which would have been planted under more favorable weather conditions. Excessive drought at planting time also greatly reduced the acreage to be seeded in Oklahoma and in northwest Texas.

Abandonment of acreage at 2.6 per cent of the acreage in cultivation on July 1, left 17,688,000 acres for harvest. Percentage abandonment in 1945 was somewhat above the 10-year average of 1.8 per cent (excluding cotton plowed up for AAA compliance purposes) and, percentage-wise, was greater than in any year since 1936. Abandonment was particularly heavy in Oklahoma and in northcentral and northeast Texas, where continued rainfall throughout the growing season resulted in irregular stands and in unusually heavy losses from boll weevils. Above-average abandonment also occurred in the Mississippi River Delta states where the crop was planted under unfavorable conditions and where continued rains after July 1 drowned out some of the lowland acreages. In other states acreage abandonment was less than average.

Acreage planted to American Egyptian cotton in 1945 was further reduced to 6,200 acres compared with 14,700 acres planted in 1944 and almost 200,000 acres planted in 1942. Acreage planted to this long staple type of cotton was greatly increased during the recent war years to provide high quality fiber for military uses, but under conditions prevailing during the past two years American Egyptian cotton could not profitably compete with the long staples of imported fibers.

COTTON YIELDS

Although the 1945 per-acre yield of cotton, computed at 250 pounds, was 44 pounds less than the 1944 record, it was 19 pounds above the 10-year (1934-43) average. Even though much below the previous year, the 1945 yield was still the sixth highest on record and above that of any year prior to 1937. The attainment of this comparatively high yield, considering the generally unfavorable weather throughout most of the planting, growing, and harvesting season, is attributable in part to the improved varieties and cultural practices now used, but mostly to the use of the better cotton lands for growing the reduced acreage. In all states east of the Mississippi River and in Arkansas yields were well above average. These above-average yields more than offset below-average yields in all other cotton producing states.

COTTON PRODUCTION

The 1945 cotton crop of 9,195,000 bales (500 pounds gross weight) was 3,035,000 bales or 24.8 per cent less than 1944, 25.2 per cent less than the 10-year (1934-43) average, and below production in any year since 1921. This marked drop was owing to a 12 per cent decrease in acreage harvested and very unfavorable weather from planting through mid-harvest season in most states. Production was below 1944 as well as the 10-year average in all states, except in California where the 1945 production exceeded that of 1944.

Severe drought in Oklahoma and northwest Texas and excessive rain and flood water in the Mississippi Delta areas materially delayed plantings and caused the crop to get off to a poor start. In most all regions, stands were thinned by cold, wet soils, and considerable replanting was necessary. Frequent and prolonged rains which continued during the growing season resulted in excessive plant growth, heavy weevil infestation, and slow maturity of bolls. This condition was particularly serious in the Mississippi River Delta areas, in Oklahoma,

COTTON ACREAGE, YIELD, AND PRODUCTION

State	Acreage of Cotton in Cultivation July 1			Lint Yield per Harvested Acre			Production (Ginnings)[1] 500 lb. Gross Wt. Bales		
	Average 1934–43	1944	1945	Average 1934–43	1944	1945	Average 1934–43	1944 Crop	1945 Crop
	Thousand Acres			Pounds			Thousand Bales		
Missouri	400	410	254	420	487	297	348	411	155
Virginia	45	31	25	304	460	326	28	29	17
North Carolina	900	765	563	326	454	371	604	710	430
South Carolina	1,310	1,089	1,006	280	384	324	755	864	675
Georgia	2,056	1,368	1,256	229	286	256	972	810	665
Florida	78	34	23	148	192	167	24	13	8
Tennessee	761	665	640	319	409	377	498	562	495
Alabama	2,079	1,429	1,406	236	339	321	1,010	1,006	935
Mississippi	2,713	2,365	2,290	302	400	343	1,677	1,937	1,615
Arkansas	2,222	1,801	1,686	293	377	316	1,322	1,394	1,080
Louisiana	1,208	938	866	259	321	224	643	620	395
Oklahoma	2,095	1,524	1,297	143	206	118	565	634	295
Texas	9,787	7,354	6,237	160	177	146	3,112	2,646	1,820
New Mexico	114	115	117	473	488	442	109	116	107
Arizona	215	145	155	415	453	386	185	136	125
California	349	303	319	588	521	560	424	327	370
Illinois, Kansas, and Kentucky	23	18	17	382	404	227	18	15	8
United States	26,359	20,354	18,157	231.0	293.5	249.6	12,293	12,230	9,195
American Egyptian[2]	75.3	14.7	6.2	239	289	331	34.2	8.8	4.3

[1] Allowances made for interstate movement of seed cotton for ginning. A 500 lb. gross weight bale represents approximately 480 lb. net lint.

[2] Included in state and United States totals. Grown principally in Arizona, New Mexico, and Texas.

and in north central and northeast Texas.

With wet and cloudy weather continuing through mid-October, bolls opened slowly and the rate of ginning was far below average. Although open weather prevailed after mid-October and ginnings picked up rapidly, the limited labor supply was unable to harvest the crop before the onset of winter weather, so that a comparatively large portion of the crop remained in the field on Dec. 1.

VALUE OF COTTON PRODUCTION

The preliminary average price of lint cotton to Dec. 1 was 22.4 cents per pound compared with the season average price of 20.7 cents per pound for the crop of 1944. The price received for the 1945 crop is above the average received for any crop since 1924. Computed at 22.4 cents per pound, the value of cotton lint production is placed at $1,029,105,000. The preliminary price of cottonseed, at $51.80 per ton, is almost one dollar below the average of $52.70 per ton received from the crop of 1944. Value of cottonseed production is computed at $191,939,000 and the combined value of cotton lint and cottonseed, $1,221,044,000. The value of the 1944 crop was estimated at $1,526,020,000. Included is the value of cotton lint placed under government loan and unredeemed at the end of the crop marketing season. For the 1944 crop, 2,100,000 bales were placed under loan, of which about 1,000,000 bales had been redeemed by Aug. 1, 1945. Loans had been made on only 134,000 bales of the 1945 crop up to Dec. 8. In addition, the Commodity Credit Corporation purchased 95,000 bales of the 1945 crop through Dec. 8 as compared with 2,500,000 bales for the entire 1944 crop season.

WHEAT

Breaking the record set only the year before, wheat production in 1945

GRAIN CROPS—UNITED STATES

Crop	Acreage Harvested			Yield per Harvested Acre			Production		
	Average 1934–43	1944	1945	Average 1934–43	1944	1945	Average 1934–43	1944	1945
	Thousand Acres			Bushels			Thousand Bushels		
Wheat									
Winter	38,526	40,560	46,678	15.3	18.7	17.6	585,994	758,930	823,177
Durum	2,361	2,116	1,970	12.1	15.1	17.8	29,330	31,933	35,020
Other Spring	12,943	16,419	16,092	13.3	17.1	16.5	173,756	281,314	264,946
All Wheat	53,829	59,095	64,740	14.7	18.1	17.3	789,080	1,072,177	1,123,143
Rye	3,379	2,228	1,981	11.9	11.4	13.3	41,434	25,500	26,354
Rice	1,103	1,471	1,506	47.8	46.3	46.6	52,346	68,161	70,160
Buckwheat	420	515	413	16.9	17.8	16.2	7,121	9,166	6,701
Corn, all	91,209	97,078	91,202	26.8	33.0	33.1	2,433,060	3.203,310	3,018,410
Oats	35,783	38,735	41,503	29.6	29.8	37.3	1,068,399	1,154,666	1,547,663
Barley	11,997	12,104	10,195	22.3	23.0	25.9	273,481	278,561	263,961
Sorghum Grain	4,886	9,104	6,324	13.7	19.9	15.1	70,310	181,542	95,599
Beans, dry[1]	1,822	2,030	1,571	872	791	864	15,942	16,059	13,578
Soybeans for beans	4,812	10,415	10,873	17.6	18.3	17.6	86,732	190,406	191,722

[1] Yield of dry beans is expressed as pounds per acre and production as thousand bags of 100 pounds each, uncleaned.

reached 1,123,143,000 bushels. Billion-bushel wheat crops had previously been harvested only in 1944 and 1915. Contributing to the setting of this new record were the third largest acreage ever harvested and a favorable growing season. The second largest winter wheat crop occurring in the same year and a fairly good spring wheat crop are combined in this record production of all wheat.

Ample supplies of wheat for domestic requirements in the 1945-46 season are indicated in the total of the new crop combined with carry-over stocks of 281,000,000 bushels. In the 1944-45 season, civilian and military food uses account for about 559,000,000 bushels, seed 81,000,000, industrial alcohol 96,000,000, feed 275,000,000, and exports 139,000,000 bushels. In the current season, July 1, 1945 to June 30, 1946, requirements are estimated at 540,000,000 bushels for civilian and military food, 82,000,000 for seed, 25,000,000 for industrial alcohol, 170,000,000 for feed, and 325,000,000 for exports, which would leave stocks about the same as at the beginning of the 1945 crop year, assuming that imports will be relatively small.

Farmers responded to the urge for increased food production by growing the largest acreage of wheat since 1938. Of the 68,781,000 acres seeded to wheat, 64,740,000 acres were harvested for grain; thus only 6 per cent of the seeded acreage was not harvested for grain. This compares with 65,439,000 acres seeded, 59,095,000 acres harvested, and about 10 per cent not harvested for grain in the 1944 season. Much winter wheat was seeded in the fall of 1944 in ground that was deficient in moisture, but rains in early October were in time to bring up good stands of wheat and to permit completion of seeding the intended acreage. Wheat went into the winter with good growth, having furnished more fall pasture than usual in the Great Plains states. Good snow cover in the eastern Corn Belt area helped to hold winter losses to a low level, and an early spring gave the crop a good start. However, wet weather at usual seeding dates tended to limit the acreage of spring wheat sown. Cool weather held rust damage to a minimum and favored filling of the heads. The enormous crop created a serious handling problem, but coordination of facilities for storage and transportation, even in the wartime shipping emergency, resulted in a satisfactory solution of the problem.

Valued at $1,673,688,000, the tremendous 1945 crop exceeds the $1,516,088,000 valuation of the 1944 crop and the $1,145,909,000 in 1943. Value is computed at the preliminary season average price of $1.49 per bushel in 1945, at $1.41 in 1944, and $1.36 in 1943. These season average prices are prices received by farmers for the portion of the wheat crop they sell, usually 75 to 85 per cent of the total produced. They include allowances for unredeemed loans at average loan values, though at the current level of prices the quantity of wheat placed under loan has become relatively small. Such prices applied to production afford a measure of the importance of each crop to the agricultural industry.

WINTER WHEAT

A total of 50,123,000 acres of winter wheat was seeded in the fall of 1944, nearly 9 per cent more than a year earlier and the largest acreage since the fall of 1937. Increases were rather general in important winter wheat states, though numerous states with relatively small acreages reduced them further. More than half of the total acreage was seeded in three states—Kansas, Oklahoma, and Texas—with 28 per cent of the total in Kansas alone. While Nebraska was fourth in acreage, it was second to Kansas in production, followed by Oklahoma, Ohio, and Washington.

Seeding operations began in the fall of 1944 with the ground so dry that seed beds were prepared with difficulty. While considerable acreage was seeded in dry soil, seeding operations were largely delayed until early October rains fell, permitting rapid seeding of remaining fields and enabling seeded acreage to germinate strongly. By Dec. 1, 1944, condition of wheat was reported outstandingly high in the Great Plains and Mountain states and unusually good throughout the Central and Eastern states, entering the winter with high yields and low abandonment in prospect. Spring growth started early with warm weather in March and early April. A shortage of soil moisture developed in the Pacific Northwest, in the Southern Great Plains and New Mexico, cutting yields, but excessive rains fell in North Central states and caused harvesting losses in areas east of the Allegheny Mountains. As a result, yields averaged 17.6 bushels per harvested acre, compared with 18.7 bushels in 1944, and the 10-year average of 15.3 bushels. On the 46,678,000 acres harvested, production was 823,177,000 bushels, exceeded only by the 825,315,000 bushels in 1931.

SPRING WHEAT

Of a total of 299,966,000 bushels of spring wheat, 35,020,000 bushels were durum and 264,946,000 bushels other spring wheat. Durum wheat was harvested from only 1,970,000 acres in 1945. Only in the severe drought years of 1934 and 1936 had the acreage ever before fallen below 2,000,000, but yields were exceptionally good, averaging 17.8 bushels, which was exceeded only in 1942, so that production was 10 per cent higher than in 1944. Other spring wheat had a fairly good season, but both the acreage at 16,092,000 acres and yield at 16.5 bushels per acre, were lower than in 1944. The greater part of the acreage developed without damage, though hot winds in some areas forcing heads to early maturity, drought in Montana, a relatively dry season in the Pacific Northwest, and frost in higher altitudes reduced yields. Harvesting weather was favorable in all areas.

RYE

Since the turn of the century, only in 1944 and in the drought years of 1933, 1934 and 1936, has rye production been less than the 26,354,000 bushels harvested in 1945. Continuing the downward trend of recent years, the acreage of rye seeded for all purposes was 4,476,000 acres, the lowest of record. Of this, only 44 per cent, or 1,981,000 acres, was harvested for grain, the smallest acreage since 1934. A considerable acreage is usually sown for pasture, for hay, and for soil conserving purposes.

Acreages harvested for grain continued to decrease in such major producing states as North Dakota, South Dakota, and Minnesota to the extent that they were exceeded in 1945 by the Nebraska acreage, which had been below them in the 1934-43 averages. Production in Nebraska exceeded average but was slightly below that in South Dakota in 1945. The national yield per harvested acre at 13.3 bushels was well above 1944, and average. At the preliminary season average price of $1.33 per bushel, the value of 1945 production was $35,145,000 compared with $1.09 and $27,677,000 in 1944.

Stocks of rye on July 1, 1945—12,787,000 bushels—were at an extremely low level. These, with the new crop and probable imports, provide a supply of only about 41,000,000 bushels for the 1945-46 season. In the preceding 1944-45 season, disappearance amounted to over 48,000,000 bushels, of which 9,100,000 bushels were used for food, 19,500,000 for feed, 6,200,000 for seed, 10,200,000 for alcohol and distilled spirits, and 3,200,000 for exports. In the current season, July 1, 1945 to June 30, 1946, about 8,300,000 bushels are expected to be used for food, 7,000,000 bushels for seed, with the quantity for feed, alcohol, and exports reduced to bushels between 20,000,000 and 22,000,000, which would exceed production and further reduce the July 1, 1946 carryover.

BUCKWHEAT

A relatively small crop of 6,701,000 bushels of buckwheat was harvested in 1945, about 6 per cent below the 1934-43 average acreage. The acreage seeded to buckwheat was well above average, largely because of substitution of buckwheat as a late catch crop when seedings of other grains were reduced by the wet spring. The crop progressed well during the growing season, but of the 486,000 acres seeded only 413,000 acres were harvested. Abandonment was particularly heavy in New York, Pennsylvania, and Michigan, where weather at harvest time was adverse. The yield of 16.2 bushels per harvested acre is below average. At the preliminary season average price of $1.12 per bushel, the value of 1945 production is $7,519,000, considerably less than the $9,290,000 for the 1944 crop, when the price per bushel was only $1.01.

RICE

For the fourth consecutive year, the rice crop set a new production record. The 1945 crop of 70,160,000 bushels exceeded that of 1944 by 2,000,000 bushels. It was harvested from a record acreage of 1,506,000 acres, 2 per cent larger than the year before. The average yield was 46.6 bushels per harvested acre, compared with 46.3 in 1944 and the average of 47.8 bushels. The Southern area produced 55,600,000 bushels in 1945, as both acreage and yield exceeded that of 1944 when 53,200,000 bushels were harvested. In Arkansas, despite delaying spring rains, development and expansion of a new area continued, and an excellent crop was harvested without unusual loss. In Louisiana and Texas the planting and growing season was favorable, but a tropical storm in much of the Texas rice area interfered with harvest operations and resulted in lower yield because of harvesting loss. The California crop of 14,520,000 bushels was slightly less than the 15,000,000 bushels produced in 1944; although the acreage was larger, yields fell below expectations. A rainy growing season caused rank plant growth and considerable lodging, resulting in much immature rice and some harvesting difficulties. At a preliminary season average price of $1.81 per bushel the 1945 crop is valued at $127,104,000, compared with $1.77 and $120,385,000 in 1944.

FEED GRAINS

The third largest aggregate of record for corn, oats, barley and sorghum grain was produced in 1945. The 118,290,000 tons in 1945 was exceeded only by the 119,936,000 tons in 1944 and 122,566,000 tons in 1942. It was a quarter larger than the 1934-43 average and a fifth larger than the pre-drought (also before A.A.A. allotments restricted acreage) average for 1923-32. As usual, the major part of this tonnage was of corn, but corn was a smaller proportion of the total than in any of the previous three years. Oats contributed considerably more than usual, barley was the smallest crop since 1938, and sorghum grain was the smallest since 1940.

Farmers realize the greater part of their income from feed grains by way of the livestock to which they are fed. Of the supply of feed grains, by far the greater proportion is fed on the farms where grown or purchased by other farmers for this purpose. Commercial users require only a relatively small proportion. In some areas corn was killed by frost while immature, so that more than the usual proportion was utilized as forage. Much of the grain corn was "soft" or of high moisture content, requiring a greater quantity to produce the desired results in livestock feeding. Feed production was fairly well distributed in 1945. The large production of feed grains assured generally adequate supplies, as production per grain consuming animal unit was well above average. Hay supplies were unusually large.

Information on stocks of corn, oats, and barley in all positions on quarterly dates have been available now for nearly three years. As of Oct. 1, 1945, stocks of corn were larger than in 1944, but less than in 1943; stocks of oats were larger than ever before, but stocks of barley were lower than in either of the previous years. Supplies of feed grains (stocks at the end of the crop year plus new production) were larger than in 1944, but prospective imports and quantities of wheat and rye to be fed were less.

CORN

Another 3,000,000,000-bushel corn crop was produced in 1945, the fourth in succession, but the smallest of the four. The 3,018,000,000 bushels in 1945 was 6 per cent below the record 1944 production, nearly equaled that of 1943, but was about a fourth larger than average. This total includes 2,699,000,000 bushels harvested for grain as well as an allowance for corn utilized as silage, forage, hogging, and grazing. More than the usual amount of the corn for grain was either "soft" or of high moisture content. Farmers, however, took measures to prevent waste by drying the corn where possible, or by feeding quickly and locally such corn as can not be stored safely.

The chief factor limiting corn production in 1945 was the relatively small acreage. Except for four years, 1939-1942, in no year of this century has a smaller acreage of corn been planted and harvested than the 92,867,000 acres planted and the 91,202,000 acres harvested in 1945. Planting intentions were never fully realized, though planting was not completed before mid-July. Abandonment was relatively light. About 64 per cent of the acreage was planted to hybrids—85 to 100 per cent in most Corn Belt states, which was a significant factor in the high average yield. Of the acreage harvested, 80,812,000 acres were for grain, 4,641,000 acres for silage producing 36,137,000 tons, and 5,749,000 acres were utilized by livestock in the form of fodder, pasture, and acreage hogged off.

Seldom has a corn crop with so many serious obstacles to overcome been able to reach bumper proportions. The acreage available for corn was limited when light abandonment of winter wheat left fewer acres to be replanted to corn, and seedings of spring grains were heavy. At corn planting time, intermittent rains and cold weather delayed operations beyond optimum planting dates, so that many fields intended for corn were never planted. A large part of the Corn Belt acreage was waterlogged and could not be worked for extended periods. Some late fields were not even tasseled by Sept. 1, making them vulnerable to killing frosts that occurred before or near the usual dates. The season was favorable, however, for corn in most of the South. An average yield of 33.1 bushels per harvested acre exceeded any year other than 1942. New production records were set in Indiana and North Carolina.

Measuring the value of all corn by the price received by farmers for the quantity they sold, the value of 1945 production, at the preliminary season average price of $1.14, was $3,436,356,000. This compares with $1.09 and $3,478,270,000 for the record 1944 corn crop.

Stocks of corn in all positions Oct. 1, 1945 were 329,000,000 bushels, which added to new production, result in a supply of 3,347,000,000 bushels for the 1945-46 season. A year earlier stocks were 235,000,000 bushels and the supply 3,438,000,000 bushels. On Oct. 1, 1943, stocks were 388,000,000 bushels and the supply 3,423,000,000 bushels.

OATS

The nation's first 1,500,000,000-bushel oats crop was produced in 1945. The 1,547,663,000 bushels was a third larger than the 1944 crop. It was harvested from 41,503,000 acres, on which the average yield per acre was 37.3 bushels, the best on record.

An exceptionally good season was experienced in most areas and especially in the North Central states where over 75 per cent of the acreage and 80 per cent of the production was grown in 1945. An unusually early spring enabled farmers to seed a large portion of the acreage early, and while later unfavorable weather delayed seedings, it did not materially reduce them. The growing season, prolonged by ample moisture and cool weather, was ideal for filling and maturing the crop, resulting in high test weight and heavy yields. New disease-resistant, higher yielding, and locally adapted varieties are being used throughout the country, and still others are being developed. The low labor requirements of the crop, the increased use of combines, and the favorable feeding quality of oats are other factors contributing to the steadily expanding acreage in most areas, especially in the South.

The 1945 oats crop has a value of $1,011,918,000 at the preliminary season average price for oats sold of 65.4 cents per bushel. This compares with $815,370,000 for the 1944 crop at 70.6 cents per bushel.

Stocks of oats in all positions on July 1, 1945 amounted to 238,000,000 bushels, which added to the new crop, makes the supply for the 1945-46 season about 1,786,000,000 bushels. A year earlier stocks were 208,000,000 bushels and the supply about 1,363,000,000 bushels, and on July 1, 1943 stocks were 262,000,000 and the supply 1,399,000,000 bushels.

BARLEY

The 1945 barley crop of 263,910,000 bushels was the smallest since 1938, about 5 per cent less than in 1944 and 3½ per cent less than average. Reduced acreage accounts for the small crop, as the yield of 25.9 bushels per harvested acre was the best since 1915.

The 10,195,000 acres harvested in 1945 was 1,900,000 bushels less than in 1944 and 1,800,000 acres of this reduction occurred in the North Central states. This region harvested nearly 70 per cent of the nation's barley acreage during the 10 years 1934-43, about 59 per cent of the total in 1944, but only 53 per cent in 1945. Only in Ohio, Montana, Colorado, Arizona, and California were 1945 acreages above those of 1944. Yields were higher than average in most states and higher than 1944 in most important producing states. Inability of barley to compete satisfactorily with other crops has brought a steady decline in barley acreage since 1942, the peak year. Low yields and poor returns, often resulting from disease, and lack of varieties that will hold their ground against other crops, have contributed to the decline in acreage. At the preliminary season average price of $1.02 per bushel, the 1945 barley crop is valued at $268,234,000, compared with $1.01 and $282,397,000 in 1944.

Stocks of barley in all positions on July 1, 1945 were about 97,000,000 bushels, which with the new crop, made the supply for the 1945-46 season about 361,000,000 bushels. A year earlier stocks were 76,000,000 and the supply 354,000,000 bushels, while on July 1, 1943 stocks were 121,000,000 bushels and the supply 445,000,000 bushels.

SORGHUM GRAIN

The 1945 crop of sorghum grain, at 95,599,000 bushels, appears small in comparison with the record crop of 181,542,000 bushels in 1944, but it is still a third larger than the 1934-43 average. The 6,324,000 acres harvested for grain were 31 per cent less than in 1944, but 29 per cent above average. The yield at 15.1 bushels per acre was 4.8 bushels less than in 1944, but 1.4 bushels above average.

Sorghums were planted later than usual, so that earlier than usual frosts killed a considerable acreage while still immature, reducing the acreage for grain below earlier expectations. The acreage for grain was only 44 per cent of all sorghums harvested in 1945, compared with 52 per cent in 1944. Sorghum grain production is heavily concentrated in the southern and central Great Plains states, with Texas producing 64 per cent of the 1945 national total. As sorghums are also produced for silage and forage, the greater-than-usual proportion which could not be utilized for grain in 1945 was largely converted to these uses.

Using the preliminary season average price for sorghum grain sold by farmers to evaluate the crop, the 1945 production at $1.19 per bushel has a value of $113,989,000, compared with 91.3 cents per bushel and $165,712,000 in 1944.

OTHER FIELD CROPS

Among the more important field crops in the United States is hay. Its importance among crops may be gauged by its value, which in 1945 ranked third, below corn and wheat, and which in 1944 ranked second, exceeded only by corn. Production of all hay in 1945 amounted to 104,951,000 tons, only slightly below the record crop in 1942. This was harvested from 74,216,000 acres. Hay is a universally grown crop with the various kinds suited to different portions of the country. Making up the total production were about 34,000,000 tons of alfalfa hay, 33,000,000 tons of clover-timothy hay, 4,000,000 tons of grain hay, 5,000,000 tons of annual legume hay, 8,000,000 tons each of lespedeza and other tame hay, and 13,000,000 tons of wild hay.

At the preliminary season average price of $15.10 per ton, the 1945 hay crop is valued at $1,589,919,000, compared with $16.30 and $1,598,720,000 in 1944. The 1945 supply of hay was 8 per cent above 1944 and 19 per cent above average, and well distributed over the country, as related to hay-consuming animal units.

DRY BEANS

The smallest crop of dry beans since 1936 was produced in 1945. The crop encountered adverse conditions from planting time through much of the harvest season, but despite all this, production was 13,578,000 bags. This was about 2,500,000 bags below the 1944 crop and the average. The 1,760,000 acres planted was the smallest acreage since 1938. Acreage losses were about 11 per cent, compared with 8 per cent in 1944. Yields per acre, however, were equal to or larger than in 1944 in most major producing states except California.

Stocks of dry beans on farms Dec. 1, 1945 were about 1,234,000 bags, compared with 1,623,000 a year earlier. On the same date 5,241,000 bags were stored in usual commercial bean storage places in and near producing areas, compared with 7,862,000 bags the year before.

SOYBEANS

Few crops underwent wartime expansion to a degree comparable with soybeans. The 1945 production of 191,722,000 bushels of soybeans was the second largest of record, exceeded only in 1943. It was almost 2¼ times as large as the 1934-43 average. Prior to the war, production of soybeans had jumped from less than 5,000,000 bushels in 1925 to over 105,000,000 bushels in 1941.

A larger proportion of the total acreage of soybeans planted for all purposes was harvested for beans in 1945 than in any previous year. Of the 14,205,000 acres planted, more than three-fourths, or 10,873,000 acres, were harvested for beans. The acreage for beans was largely concentrated in the North Central states. The average yield of 17.6 bushels per acre equalled the 10-year average, but was the lowest since 1940.

Wet weather in much of the soybean producing area caused late planting of a large part of the acreage and prevented planting of some intended acreage, though in some areas a considerable acreage was planted to soybeans when it became too late to plant spring grains and corn. The growing season was favorable and the crop made vigorous growth, so that only a small part of even the late-planted acreage suffered loss by frost.

The 1945 soybean crop, at the preliminary season average price of $2.08 per bushel received by farmers, was worth $399,011,000. In 1944 the value was $390,498,000 at $2.05 per bushel.

Stocks of soybeans on Oct. 1, 1945 were less than 8,000,000 bushels, which with the new crop, make up the 1945-46 season supply of nearly 200,000,000 bushels. A year earlier stocks were over 14,000,000 bushels and the supply about 205,000,000 bushels, of which 152,000,000 bushels were processed for oil. On Oct. 1, 1943, stocks were 12,500,000 bushels and the supply 206,000,000 bushels, of which 142,000,000 bushels were crushed for oil.

THE DAIRY INDUSTRY

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GENERAL

While the years 1943 and 1944 were characterized chiefly by the adjustment of supply of dairy products to meet wartime needs, most of 1945, especially the first eight months, reflected the full impact of government programs. Under the impetus of record unit returns, including government incentive payments, and accompanied by excellent pasture conditions, milk production was at a record level. Production of the most desired manufactured dairy products for war purposes (cheddar cheese, canned and powdered milk) was at or near record levels. Rationing programs and government orders, when they were in effect, appeared to distribute the supply more equitably than in any year since 1942. However, the supply-demand gap for dairy products was very wide during the year, even after the cessation of hostilities.

MILK PRODUCTION RECORD

Except for the drought years, 1934-37, 1943, and 1944, milk production has been steadily increasing. Until 1940, this upward trend was about in line with increases in population. Since 1940, however, the increase in milk production has been greater than the population increase. Production on farms during 1945 was about 123,000,000,000 pounds, 3 per cent above 1944, and 19 per cent above pre-war (1935-39). The average number of milk cows on farms—25,700,000 head—was about 1 per cent below the 1944 record. However, a record milk production per cow of nearly 4,800 pounds—5 per cent above 1944 and 9 per cent above pre-war—was more than an offsetting factor. This high level of milk production per cow was a reflection of the high unit returns which permitted a liberal rate of grain and concentrate feeding. Also, pasture conditions, except for 1942, were the most favorable in more than a quarter of a century.

PRICES AND INCOME

Restrained by maximum price regulations, prices received by farmers for dairy products in 1945 were not much different from the previous year. The index of prices received for dairy products averaged for the year 197, one point below 1944. Wholesale and retail prices were unchanged from 1944 with the exception of creamery butter, which was raised 5 to 6 cents in early November.

With a record milk production, the cash income from dairy products, including government incentive payments, was the largest ever reported. Cash receipts from marketing of dairy products totaled about $3,100,000,000. In addition, there were dairy feed payments of about $500,000,000, so that cash income was about $3,600,000,000, more than double the pre-war years. In addition to the cash income received by dairy farmers, it is estimated that milk, cream, and butter consumed on farms had a value of close to $600,000,000. Thus, gross farm income from dairy products was in the neighborhood of $4,200,000,000. As has been the case every year since 1919, except 1943, dairy products were the single largest source of income for farmers.

LIFTING OF WARTIME RESTRICTIONS

Directing of milk to the most desired wartime uses was accomplished by limitation, reservation, allocation, and rationing orders. Reservation orders require the setting aside of a part of output or stocks for sale to government agencies. Limitation orders restrict production and sales of products. Allocation orders require users to apply for permission to use a specified quantity of products under allocation. Rationing is a routinary version of allocation, used where a large number of consumers is involved.

The end of hostilities and the reduction in military requirements was followed from August through November by termination of all restrictions on the production and consumption of dairy products.

Reservation orders in effect through August 1945 related to creamery butter, American cheddar cheese, and spray process non-fat dry milk solids for human consumption. The percentages required to be set aside varied in such a way that civilian supplies for most months were fairly constant.

Limitation orders, which were in effect during the first eight months of the year and which were lifted in August or September, limited sales of fluid milk and fluid cream with less than 19 per cent butterfat, prohibited the sale of cream containing more than 19 per cent butterfat, except for manufacturing purposes, restricted production of all types of cheeses other than cheddar, cottage, pot, and bakers, and restricted the sales of dried milk products and compounds. These limitation orders were in effect in order to channelize milks into the most desirable wartime uses.

Allocation orders in the dairy field related to lactose (milk sugar) and casein.

RATIONING PROGRAMS

Supplies of manufactured dairy products during most of 1945 appeared to be more equitably distributed than in the preceding two years. Rationing of butter and cheese became effective March 29, 1943, and of canned milk on June 6, 1943. Rationing restrictions on cheese and canned milk were eliminated during September, 1945 and on butter at the end of November.

The supply of butter was shortest of demand in the early part of 1945 and after rationing restrictions were lifted. Cheese supplies were short during all the year. With the removal of rationing restrictions, supplies became scarcer in relation to demand. Supplies of canned milk were fairly ample during the year.

UTILIZATION OF MILK

The 126,000,000,000 pounds of milk produced on farms and in cities and villages were utilized and finally consumed in a variety of ways. About 3,000,000,000 pounds were used in feeding calves on farms. Additional 12,000,000,000 pounds were consumed as fluid milk and cream by people living on farms. In addition, about 6,500,000,000 pounds went into farm products. Thus, almost 22,000,000,000 pounds, approximately 1/6 of the total production, did not enter into channels of trade. The urban population consumed the equivalent of about 46,000,000,000 pounds of fluid milk and cream. Total consumption of fluid milk and cream, farm and urban, was 5,000,000,000 pounds or approximately 45 per cent of the total production. Creamery butter utilized the smallest quantities of milk in a quarter of a century, about 29,000,000,000 pounds going into that use. On the other hand, utilization of milk in cheese and canned milk was at a record level, about 11,500,000,000 pounds going into cheese production and 9,000,000,000 pounds into producing canned milk. An additional 6,000,000,000 pounds went into the production of ice cream, including dry ice cream mix, and dried whole milk utilized about 2,000,000,000 pounds, leaving approximately 1,000,000,000 pounds for other uses.

Skim milk available for manufacturing purposes was at a record of about 13,500,000,000 pounds. Of this quantity nearly 8,000,000,000 pounds went into production of non-fat dry milk solids for human consumption. Quantity of skim milk wasted or fed to livestock was probably the lowest on record.

MANUFACTURED PRODUCTS OUTPUT

With total milk production in 1945 at a record and with the price relationships favoring production of dairy products other than butter, the output of whole milk manufactured products was substantially above 1944 and at or near record levels. Production of American cheddar cheese was 900,000,000 pounds, about 11 per cent above 1944 and almost double the 1935-39 average production. Production of condensed and evaporated milk was 4,230,000,000 pounds, 13 per cent above 1944 and 90 per cent above average. Dried whole milk production was 205,000,000 pounds, 10 times the pre-war average and 30,000,000 pounds above 1944. The output of non-fat dry milk solids for human consumption reached a record level of 640,000,000 pounds, 10 per cent above the previous record in 1944. In sharp contrast to the near-record-level production of whole milk products, total butter output in 1945 of 1,720,000,000 pounds was the lowest in a quarter of a century. Although current estimates of ice cream production were not available, production of ice cream and sherbets was probably higher than in any year of record.

CIVILIAN PER CAPITA CONSUMPTION

Of the total supply for human consumption of about 124,000,000,000 pounds, milk equivalent, of dairy products, approximately 103,000,000,000 pounds were consumed by civilians, 13,000,000,000 pounds were procured by the armed forces, 6,000,000,000 pounds were exported, and the remaining 2,000,000,000 pounds went into stocks. Purchase by the armed forces and the U. S. Department of Agriculture for lend-lease purposes accounted for about half of the total cheddar cheese production, 40 per cent of the evaporated milk output, a quarter of the creamery butter production, more than 2/3 of the dried whole milk manufactured, and about half of the production of non-fat dry milk solids for human consumption. In addition, about 2,000,000,000 pounds of fluid milk and cream were consumed by the armed forces.

Because of the high level of milk production and the sudden surrender of Japan in August, the 1945 civilian per capita supply of dairy products (on a milk equivalent basis) was about equal to the pre-war level and above 1943 and 1944 despite the large quantities of non-civilian purchases. Civilian consumption of dairy products was about 800 pounds per capita. Consumption of fluid milk and cream, though restricted by government orders until mid-August, was about 440 pounds per person, 4 per cent above 1944 and 30 per cent above prewar. Civilian supplies of most whole milk manufactured products (cheese, canned milk, dried whole milk) were at or near the pre-war level. Per capita consumption of butter, however, was the lowest in almost a century.

The milk equivalent of production and consumption of dairy products also can be determined by using conversion factors based on the relative amounts of non-fat milk solids (protein, minerals, and milk sugar) contained in the various products. Milk products containing non-fat milk solids are by far the most important nutritional sources of calcium and riboflavin. In view of the possible deficiencies of these two nutrients in civilian diets, this method of calculating milk equivalents is receiving increasing attention. Figured in this way, the civilian per capita consumption of all milk and dairy products on a whole milk equivalent basis in 1945 was 560 pounds, compared with 524 pounds in 1944 and a 1935-39 average of 431 pounds. The difference between the civilian consumption of all milk on a fat and non-fat solids basis largely represents non-fat solids (skim milk, buttermilk, and whey) fed to livestock or used for industrial casein.

GOVERNMENT PRICE SUPPORTS AND SUBSIDIES

For 1945, specific price supports on manufactured dairy products were not announced as in 1943 and 1944. The only support commitment which was in effect was that of the Steagall Amendment to the Price Stabilization Act, which provides that the price of whole milk and butterfat received by farmers shall be supported at not less than 90 per cent of parity for two years following the Jan. 1 after hostilities cease. However, subsidy payments were made on butter and American cheese in order to keep the cost of living down. The rollback subsidy of 5 cents per pound on butter was in effect through Oct. 31. The cost of the rollback butter subsidy for the year 1945 was slightly over $60,000,000.

The subsidy payments on American cheddar cheese were 3¾ to 4 cents per pound, depending upon the amount of moisture in the cheese. This subsidy payment was in effect during the whole year and aggregated approximately $33,000,000. In addition, purchase and resale programs for fluid milk, which had been in operation since 1943, continued in 13 major marketing areas.

A program of government payments to protect dairy farmers against increases above September 1942 feed prices, continued in operation during all of 1945. Payments were highest in areas where the quantity of purchased feed is large and feed costs the most advanced. The total cost of this program is estimated at about $500,000,000 for 1945.

INSECT PESTS AND PLANT QUARANTINES

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GENERAL

Research, conducted cooperatively by the Bureau of Entomology and Plant Quarantine with Federal, state, and other agencies, has produced results which promise far-reaching effects upon the general control of insect pests in the future, and which will also affect large-scale programs to combat outbreaks of injurious insects. Of special interest is the extension of the usefulness of the aerosol method of dispersing insecticides, both the liquefied-gas aerosol and those in the form of smokes. The utilization of various types of distributors, whereby a concentrated spray, broken into very fine droplets, can be effectively applied from the air, has made possible the practical use of airplanes for the application of sprays. As little as one gallon will give good coverage over an area as large as an acre on certain types of foliage. This opens up new possibilities for the application of liquid insecticide materials from the air. Similar improvements have been made in equipment for applications from the ground.

Extensive research on new insecticides has shown the important new material DDT to hold much promise against agricultural insects. Although not effective against all insects, the results indicate that it will be useful against many important ones which are injurious to livestock and crops. The more promising methods are being rapidly adapted to aid in efforts to control pests of major importance and to maintain the production of food, lumber, and fiber. Methods and formulations for its use for the control of disease-carrying insects have been developed and used effectively by the armed forces. Certain of its limitations must be worked out before DDT can be used with safety for some purposes.

NEW INSECTICIDES AND METHODS OF APPLICATION

Two new nicotine compounds were found to be more highly toxic than free nicotine. Solutions, emulsions, powders, and aerosols containing DDT were formulated and tested for various insecticidal purposes. Specifications were worked out for commercial grades of DDT and for certain DDT preparations. A new insecticidal material, the active principle of which is the gamma isomer of benzene hexachloride, was tested and found to be more toxic than DDT to some insects and less toxic to others. Further tests were made in the adaptation of heat-generated, or "smoke," aerosols for the control of agricultural pests. Tests of the latest models of power blowers in dispersing insecticides in finely atomized form proved that the mist blower is especially well adapted for treatment of shade and roadside trees and that much less spray material is used by this method. The so-called aerosol "bombs," of which approximately 35,000,000 were distributed to the armed forces during the war period, are now becoming available for civilian use.

INSECT REPELLENTS

Two important developments were the repellents dimethyl phthalate, which can be applied to the outer garments to give protection against chiggers and to some extent against ticks; and benzyl benzoate for impregnation of clothing to furnish protection against mites which transmit scrub typhus in the Pacific area. It was found that a combination of dimethyl phthalate, Indalone, and 2-ethylhexanediol was effective for use as a repellent against malaria mosquitoes found in the United States and was more generally effective on every individual against various mosquitoes and biting flies than any of these compounds alone.

MOSQUITOES

The research with DDT has shown it to be outstanding in its toxicity to mosquitoes. It is the only material known that will kill mosquitoes and flies when sprayed on the walls of dwellings or barns. An important accomplishment is proof of its residual value in controlling malaria. DDT has also given mosquito-control workers for the first time a material that can be applied from various kinds of aircraft and, with one operation, will destroy the larvae in the water and the adult mosquitoes on the wing.

SCREWWORMS

Two new smears that contain chlorophenoxathiin were developed for treatment of screwworm-infested animals. The new smears showed a distinct advantage over those containing diphenylamine in that they did not become hard and crusty on the wound after the benzene had evaporated.

CODLING MOTH

Used experimentally in 1944, DDT gave outstanding control of this insect in New York, Maryland, West Virginia, Indiana, and Washington. From ½ to one pound of powdered DDT appeared superior to three pounds of lead arsenate or cryolite for control of codling moth larvae, but the possible increase of mite populations where such quantities are used remains to be considered. Although residues of DDT on harvested fruit have been found difficult to remove, they do not appear sufficiently heavy to present a serious health problem.

ORIENTAL FRUIT MOTH

Injury to peaches was reduced considerably in experimental field plots sprayed with DDT at the rate of one pound per 100 gallons of water. Two applications, one each just before the appearance of both second- and third-brood larvae, were more effective than one application made just before the appearance of the second brood. Continuation of the cooperative Federal-state survey in several western states disclosed the presence of the fruit moth in 1944 for the first time in five counties in Colorado and in one county each in Utah, Idaho, and Arkansas. In 1945 Washington and Oregon were added to the range of known distribution. The new method of producing *Macrocentrus ancylivorus Roh,* an important parasite of the oriental fruit moth, from the potato tuber worm was further developed for use under eastern conditions.

JAPANESE BEETLE

There was a 59-per cent expansion in the 1944 trap-scouting program, in which military and commercial airports west of the Mississippi River were included. Beetles were captured for the first time in 36 localities. Experimentally, one to three applications of DDT (micronized with an equal quantity of pyrophyllite and with glue as a wetting agent) at the rate of one pound to 100 gallons of spray gave almost complete control of the adult beetle on peach, early apple, grape, blueberry, and a miscellaneous group of ornamental and shade trees and shrubs. In soil tests a dosage of 25 pounds of DDT per acre was found to be more effective against third-instar larvae than 1,000 pounds of lead arsenate and to be as effective after 75 weeks in the soil as when first applied. Results of the milky-disease distribution program for control of the larvae continue to be favorable. Revised Japanese Beetle quarantine regulations were issued.

WHITE-FRINGED BEETLE

During 1944 there was some extension of the area infested. The insect is now known to occur on a total of 140,000 acres in Alabama, Florida, Louisiana, Mississippi, and North Carolina. Insecticides were applied to 68,702 acres in order to reduce populations at places from which there was danger of spread and on crops the marketing of which presented a hazard. Quarantine regulations were revised to include newly infested areas.

EUROPEAN CORN BORER

During 1944 this insect was found for the first time in Kansas, Nebraska, and Tennessee, and in a considerable number of counties outside the territory previously known to be infested in 10 states. In tests with DDT, good control of the borer was provided by various spray and dust formulations.

CORN EARWORM

Heavy populations developed on late corn in some sections of the Corn Belt during 1944. Experimental injections of DDT in mineral oil into silk channels of the ears gave almost perfect control of the insect. The hazard of toxic residues in sweet corn ears has not been definitely determined.

GRASSHOPPERS

Infestation remained generally at a low level in 1944. There were some important shifts in economic populations. Substantial increases occurred in Montana, Wisconsin, and Wyoming, and slight increases in Arizona, Colorado, Oklahoma, Texas, Utah, and Washington. There were significant decreases in Kansas, North Dakota, and South Dakota.

CHINCH BUGS

Although surveys in the fall of 1944 revealed large numbers in hibernation, the serious damage in prospect for 1945 was largely prevented by continuous cool, wet weather during the spring and early summer. Tests showed dust mixtures of DDT to be very effective as barriers, but for application directly on the bugs infesting sweet corn, popcorn, and oats, good control required heavy dosages.

STORED-GRAIN INSECTS

Tests in a commercial flour mill showed that fumigation of machinery units every three weeks held the insect infestation at a sufficiently low level to insure the production of insect-free flour. Carbon tetrachloride and various mixtures of carbon tetrachloride with ethylene dibromide or trichloroethylene gave promising results as grain fumigants. Wrappings coated or impregnated with DDT, acrylamide, or a trichlorobutyramide were highly effective in preventing insect entrance into packages of cereals in experimental studies.

VEGETABLE INSECTS

Special emergency surveys of insects that attack vegetables and their control requirements were continued, in cooperation with state workers, industry, and other agencies. In South Carolina, dust mixtures containing 1 or 2.5 per cent of DDT were found to be superior to all other insecticides tested for the protection of cabbage from caterpillar damage. Encouraging results were obtained when DDT aerosol, with methyl chloride as the propellent agent, was used on large field plots of peas for pea aphid control. In the greenhouse, DDT in aerosol form, applied with special dispensers, was found to be very effective against several species of insects affecting vegetables grown under glass. The results of tests obtained thus far indicate that the use of aircraft for applying insecticides to some vegetable and tobacco crops has a promising future.

PINK BOLLWORM

Additional infestations discovered in Texas in 1944, together with new discoveries during the crop season of 1943, continued to increase the threat of spread of this insect throughout the entire Cotton Belt. Effective November 9, 1944, the domestic quarantine and regulations were revised to include recently found infestations in southern Texas.

OTHER COTTON INSECTS

Losses from boll weevil and other cotton insects in 1944 were the lowest in recent years; damage caused by the boll weevil was the least for any year since 1911. Unfavorable conditions for weevils and favorable conditions for cotton resulted in the highest yields per acre ever recorded in the United States. In experiments against insect pests of cotton it was found that DDT was not effective against the boll weevil or the cotton leafworm, and caused an increase of the cotton aphid and the common red spider. It was effective against the bollworm, the cotton flea hopper, and several stinkbugs attacking cotton.

FOREST INSECTS

The outbreak of the Engelmann spruce beetle in Colorado continued unabated, killing over 1,000,000,000 board-feet of Engelmann spruce in 1944. Extensive surveys showed the infestation to be increasing in area and severity. The discovery that the Engelmann spruce beetle hibernates beneath the bark at the base of the trees during the second winter, a habit unknown to closely related beetles, has an important bearing on control methods. The program of experiments with concentrated DDT sprays distributed from an airplane for the control of forest-insect pests has been greatly expanded, and improved spray formulas have been tested. Preliminary results of these tests are very encouraging. It has been demonstrated conclusively that DDT is the most effective and economical insecticide discovered for control of the gypsy moth, as little as ¼ pound of the material in one gallon of solvent per acre being effective in some tests. Large-scale tests to determine the possible detrimental effects to beneficial insects, fish, and wildlife when DDT is applied to large forested areas were undertaken in 1945, but the complete results are not yet available. Tests with various types of airplanes have demonstrated that the helicopter may prove very useful in treating woodland areas too large for economical treatment by ground equipment and too small for economical fixed-wing plane applications.

BEE CULTURE

Feeding pollen and soybean flour to unprotected colonies in winter resulted in better colony development early in the spring than did the generally accepted method of heavily packing colonies for winter without supplemental pollen feeding. In limited tests, bees fed clover pollen supplemented with soybean flour reared more brood than those fed unmixed rye grass, star-thistle, partridge-pea, and clover pollen alone.

FOREIGN PARASITE INTRODUCTION

Special emphasis was placed on the importation of parasites of the vegetable weevil and the cotton boll weevil from South America. A new project for the biological control of the Klamath weed was initiated in the fall of 1944. Large-scale shipments of two leaf-feeding beetles and a root borer that attack this weed were received from Australia. These are being tested on several economic crops, and field releases of one species have already been made in northern California.

INSECT IDENTIFICATION

Over 59,000 insect specimens were identified as a basis for the institution of proper control or quarantine action, or in connection with experimental work. In addition, approximately 6,000 samples of insects and mites involved in human-health problems were identified for the Army, Navy, and Public Health Service. Direct assistance or instruction in insect identification and classification was given many officers of these branches of the service.

DUTCH ELM DISEASE

Operations were modified to concentrate on determining where the disease occurs, on advising elm owners of its nature and recommending ways of combating it, and on testing methods of disease control in selected areas. There was some extension of the known limits of infection.

WHITE PINE BLISTER RUST

The control program was conducted on much the same basis as in 1944, and in general, accomplishments were about the same. Over 16,000,000 ribes bushes were removed from 969,372 acres of control area, of which 490,014 acres were initial eradication and 479,357 acres were rework.

BLACK STEM RUST

No general epidemic developed in 1944. There were severe local epidemics in some sections west of the Mississippi River. East of the Mississippi the amount of damage was negligible.

PLANT QUARANTINES

Developments in the war situation strongly affected plant-quarantine enforcement at maritime ports in 1945. Ship arrivals increased 30 per cent over those of 1944. The Army program for returning troops from Europe by airplane accelerated the rapid growth of air-borne commerce. Inspection of nearly 46,000 airplanes represented an increase of 112 per cent over the previous year. Plant-quarantine inspection was inaugurated in Alaska, a step necessitated by air traffic into the Territory. Nearly 65,000 freight cars were inspected upon crossing the Mexican border during the fiscal year 1945 and more than 9,000 were fumigated as a condition of entry; these figures represent a decrease in this activity over the previous year, owing in part to a reduction in traffic and in part to the employment of procedures for waiving fumigation when it can be done without additional risk of pest entry. In addition, 5,390 Pullman and passenger coaches and about 4,800,000 other vehicles and over 930,000 pieces of baggage were inspected, upon arrival from Mexico, in cooperation with United States Customs. The use of tight railway refrigerator cars for the bulk fumigation of plant material with methyl bromide was authorized during the year.

FISHERIES

By Ira N. Gabrielson

Director, Fish and Wildlife Service, Department of the Interior

VOLUME OF YIELD

The year 1945 was an average one in the United States fisheries in so far as the volume of the yield was concerned. Figures available at the end of the year indicated that total production amounted to about 4,400,000,000 pounds, which is equivalent to the normal pre-war average. This figure is a slight recession from the 4,500,000,000 pound yield achieved in 1944, but is substantially larger than catches during the balance of the war period.

While total production was normal, the various fisheries contributing to the total yield met with uneven success. Some broke all previous records; others fell to the lowest level in years.

FRESH FISH INDUSTRIES

The New England offshore fisheries, which supply the bulk of the product destined for the country's fresh fish markets, brought in the heaviest landings in their history—567,000,000 pounds. These fisheries operated under severe handicaps early in the war, many of their vessels having been requisitioned by the military services. By the summer of 1945, however, most of these boats had been replaced by new ones, and a good many of those requisitioned had been returned. As a result, the productive capacity of the New England fleet was considerably greater than in pre-war days.

For the third successive year, Gloucester ranked first among New England ports, with landings of 213,000,000 pounds. Boston received 188,000,000 pounds. Two Massachusetts ports which have only recently risen to prominence—New Bedford and Provincetown—both handled the largest quantities of fish in their history: 101,000,000 and 42,000,000 pounds, respectively.

Production of fresh fish in other sections also held up well in 1945. Seattle, the major port of the Pacific northwest, received 83,000,000 pounds of fishery products, a gain of about one-third over the previous year. Along the coast of the Gulf of Mexico, landings of fish showed substantial increases over 1944, although crabs, shrimps, and oysters made little or no gain.

CANNED FISH

In contrast to the fresh fish industries, most of the canned fish industries had a relatively disappointing year. The salmon fishery, which was one of the most important sources of aquatic food for war purposes, had the poorest season in a quarter of a century, with a pack of only 4,800,000 cases. This small pack had been anticipated, however, on the basis of biological data. The runs of salmon have their cycles, and 1945 happened to be a year in which poor runs could be expected.

The catch of pilchards or Pacific sardines was below that of 1944, although not disastrously so. The 1945 catch was about 416,000 tons, compared with a 1944 yield of 567,756 tons. A two-fold use is made of pilchards, some being canned, the rest processed into oil and meal. Because of the improved manpower situation in the canneries, it was possible to put up a larger pack in 1945 than in the previous year, despite the smaller catch.

The pack of Pacific mackerel was one of the smallest in years—about 636,000 cases—and the Maine sardine pack receded from the high level of

3,000,000 cases packed in 1944 to an estimated 2,600,000 in 1945.

On the other hand, the tuna fishery enjoyed an excellent season, with a pack of approximately 4,000,000 cases. The ending of the war resulted in the reopening to tuna boats of the so-called "area of vigilance" which included the important fishing grounds about the Galapagos islands.

FISH MEAL AND OIL

The fisheries for the Pacific pilchard, Alaska herring, and Atlantic coast menhaden are the principal sources of fish meal and oil. Both of these products are used in animal feeding to provide essential proteins and vitamins; the oil also has scores of important industrial uses. Demands for both oil and meal during the war period were far in excess of the supply. Although complete figures for these industries were not available at the end of 1945, it was apparent that production of both products would fall somewhat below the 1944 level, which was 213,147 tons of meal and 27,324,173 gallons of oil.

VITAMIN A OILS

United States production of vitamin A oils, which attained a high level in 1943, continued the recession begun in 1944. During 1945, production totaled 162.6 trillion units, compared with 73.8 trillion units in 1944. The only commercial source of vitamin A is the livers and other viscera of fish, with the various species of sharks providing more than half the total United States yield. The most valuable of the sharks, because of the great size of its liver and the high potency of its oil, is the soupfin shark, a Pacific coast species. Early in 1944, a decline in the catch of the soupfin became apparent. Production of livers of this species was sufficient to yield only 18.9 trillion units in 1945, compared with 25.9 trillion units in 1944. In addition to the sharks, other important sources of vitamin A oils are halibut, ling cod, sablefish, tuna, and cod.

SHELLFISHERIES

The shellfish industries in general continued to suffer from the manpower shortage, which made for a scarcity of workers in shucking and packing houses, and in some instances for a scarcity of fishermen.

In most areas the opening of the 1945-46 oyster season found supplies of marketable oysters short in relation to the demand. Lack of labor during the war period seriously affected production in some localities where oysters are intensively cultivated like an underwater crop. Production in such oyster-farming areas will suffer for several years as a result of insufficient help during the period when the young oysters should have been transplanted and protected from natural enemies.

On the other hand, the New England lobster fishery produced the largest catch for many years, rivaling the heavy catches of this industry during the 1880's, despite the fact that manpower was still scarce and that shortages of rope, lath, and other necessary materials continued to plague the industry. Although biological proof as yet is lacking, the indications are that the present trend of the lobster population is upward, reversing the decline which has been evident for many years.

EFFECTS OF WAR ON THE FISHERIES

At the conclusion of the war, the condition of the fisheries was generally sound. Our aquatic resources contributed in many essential ways to the needs of war, supplying protein foods, animal feeds, medicinal oils, and a great variety of products of value in the war industries. Demands for fishery products throughout the war period were phenomenally high. However, it was recognized by fishery authorities of the state and Federal governments that to permit excessive withdrawals from fishery stocks at the expense of the continued welfare, or indeed the very existence, of these populations would be shortsighted. Accordingly, all essential conservation measures were retained in force. This prudence now appears to have been well justified. According to available evidence, the major resources are in at least as good condition as they were at the beginning of the war.

POLLUTION

In some instances, however, the war has taken its toll. Especially is this true in inland waters, where pollution, already a grim menace to the fisheries, was greatly aggravated by the rapid growth of war industries and by abrupt increases of population in industrial centers and military camps. Even less than normal care was taken in the disposal of wastes. Streams that once supported fish populations of great value have been turned into dumping grounds for chemicals and for untreated, or at best inadequately treated, sewage, creating conditions where it is impossible for aquatic life to exist.

In the lower Chesapeake Bay, large acreages of highly productive oyster beds had to be withdrawn from use because of the polluted condition of the water. Shad are unable to spawn successfully in certain sections of the Delaware River because pollution has so reduced the oxygen content of the water that the young can not survive; as a result, the once great shad fisheries of this river can not be restored until the pollution is cleaned up.

Not only have the shad, oyster, and other food resources been affected; in all but the most isolated sections of the country recreational fisheries are suffering damage as a result of water pollution. Although means to render most wastes relatively harmless by appropriate treatment are known, their effective application is hampered by conflicting, overlapping, and obscure authority to deal with the problem.

RIVER DEVELOPMENT AND THE FISHERIES

The problem of fishery resources in relation to the development of river basins for power, irrigation, or navigation was brought into sharper focus during the year by the maturing of several such projects. It became more than ever apparent that it is necessary, in the initial stages of such projects, to consider the role of the fishery resources in the economy of the region, as well as their less tangible function as a source of recreation. The Federal Government made extensive inquiries into this matter during the year, with a view to laying before Congress the facts needed for the protection of aquatic life in conjunction with water developments.

DDT AND THE FISHERIES

The war-developed insecticide DDT has potentialities both for good and for ill in relation to the fisheries. The possibilities of its beneficial use to improve sanitation in fish processing establishments suggested themselves as soon as the chemical was released for civilian use. However, because so little was known about the possible dangers of using DDT in situations where it might come in contact with food, special studies were carried out by interested governmental agencies, including the Fish and Wildlife Service. Proper use of DDT in fishery establishments was found to reduce the fly population by as much as 95 per cent; this reduction was, moreover, effective over a long period of time. Certain precautions were found necessary to avoid bringing the spray into contact with fish, or with scraps or oyster shells to be used in animal feeding.

Use of DDT in shore areas and over water for the purpose of controlling mosquitoes and other insects was found to involve serious risk of destruction of fish, crabs, and oysters, for all aquatic life appears to be highly susceptible to the chemical.

EXPLORING FOR NEW MARINE RESOURCES

The most challenging opportunities for the development of untapped marine wealth are in Alaska, especially in the waters of Bering Sea. Experimental fishing done here by the Federal Government a few years ago revealed enormous resources of groundfish, especially flounders, pollock, ling cod, and cod. Because of the remoteness of these fishing grounds from centers of population, it is not feasible to develop these fisheries with existing facilities. The year 1945, however, saw the launching of several projects for the opening up of the fishery wealth of Bering Sea.

The most ambitious of these projects was the establishment of the Pacific Exploration Company, which, with certain financial assistance from the Federal Government, will operate a factory ship and a fleet of trawlers in Bering Sea in 1946. The trawlers will deliver their catches direct to the factory ship for filleting and freezing. All processing of the fish will, therefore, be done at the scene of fishing operations, so that the elements of time and distance separating the fishery from its potential markets can be disregarded.

If the venture proves successful, a new fishery resource, perhaps as productive as the famed Grand Bank, will be opened up for the American public. Moreover, the revolutionary change in the method of operation—the processing of fish at sea—will then undoubtedly be adopted by other American fishermen who find it necessary to go to distant waters for their catches.

FORESTRY

By Charles E. Randall
United States Forest Service

GENERAL

The close of the Second World War brought an end to the heavy demands of the armed forces on the forests of the United States. Most of the wartime controls on distribution and use of lumber and woodpulp products were promptly modified or cancelled. The reduction in military requirements, however, was offset by pent-up civilian demands. Stocks at the mills and in the hands of distributors were seriously reduced, and these would have to be replenished before lumber would again be available in adequate volume to meet civilian needs.

The war brought convincing proof that wood is an indispensable material. The War Production Board placed it on the "National production urgency list" early in 1945. The Army classed lumber almost on a par with ammunition as a combat material. Wartime shortages of many wood products were a severe handicap to the civilian economy.

The 1920-40 average of annual lumber consumption in the United States was slightly under 30,000,000,000 board feet. It is likely that annual demand will be above this figure for several years after the war. Wood requirements for pulp and paper also are expected to remain at high levels materially exceeding pre-war consumption rates.

TIMBER GROWTH ESTIMATES

Latest estimates of the rate of timber growth in American forests were made by the U. S. Forest Service in 1938. At that time the total annual growth was estimated at 11,300,000,000 cubic feet. Losses from fire, insects, diseases, etc., reduced this to a net usable increment of 9,200,000,000 cubic feet. Volume of logs and cordwood cut for all purposes was estimated at 11,400,000,000 cubic feet. Timber cut thus exceeded net usable increment by 2,200,000,000 cubic feet. In trees large enough to yield sawlogs, the net usable increment was 26,700,000,000 board feet; and the volume cut was 42,400,000,000 board feet, more than 50 per cent in excess of growth.

The Forest Service in 1945 began a reappraisal of the forest situation to bring these and other pertinent figures up to date. Meanwhile, there was little doubt that timber was still being drained from the forests faster than it was being replaced by new growth. Because of continued depletion of growing stocks, the annual net increment is not likely to have changed much since 1938, but the drain is now substantially larger. Annual lumber cut in the past few years has been some 30 per cent greater than it was in 1938.

WORLD FOREST SITUATION

A report on the world-wide forest situation was issued in 1945 by the Technical Committee on Forestry and Primary Forest Products of the United Nations Interim Commission on Food and Agriculture. This technical forestry committee was set up by the Interim Commission in March, 1944, with Dr. Henry S. Graves, dean emeritus of the Yale School of Forestry, as chairman. Membership of the 13-man group included officials and leaders in forestry and conservation in the United States, Great Britain, Canada, Soviet Union, France, Norway, Brazil, Czechoslovakia, and China.

Among the world's raw materials, the report said, wood ranks second only to food, but despite the fact that forests can be managed to provide ample wood supplies and vastly increased social benefits, only 15 per cent of the world's timberlands are being handled as a renewable and productive resource. The committee estimated that two-thirds of the world's forests receive neither care nor protection.

To help meet the problem of the destruction of forests by war and the enormous prospective need for wood after the war, the committee urged international action by the United Nations Food and Agriculture Organization in collection and unification of forestry statistics as the first step in balancing the world's forestry budget and planning its expansion. The same world agency, it stated, should undertake to aid member nations in the solution of forest problems, such as the development of techniques in the growing, harvesting, and use of wood products, and research into values of thousands of tree species still of unknown quality.

Most important of the specific problems suggested for solution by the Food and Agriculture Organization's member governments include: 1. Restoration of Europe's war-depleted forests. 2. Extension of sound management in countries whose reserves of old timber are in process of depletion. 3. Reforestation in southeastern Asia and the Middle East as an indispensable step in soil improvement, more efficient agriculture, and higher nutrition levels for almost 1,000,000,000 people. 4. Initiation of forestry measures in the largely unexploited wood-surplus countries in Latin America and Equatorial Africa. 5. Effective world-wide distribution of forest products. 6. World-wide correlation of the results of research in forest production and wood utilization. 7. Coordination of forest production and utilization with soil and water conservation as well as with other land uses and services, such as wildlife and grazing.

FOREST FIRES

Acreage burned over by forest fires in the United States in 1944 was held to a little more than half that of the previous year. A total of 16,549,312 acres was burned during 1944 as compared with 32,333,398 acres in 1943. A reduction in number of fires also was reported: 131,229 for 1944 as against 210,326 the year before.

The reduction in fire losses was regarded by the Federal and state forestry agencies as particularly encouraging because for years prior to 1944 the area burned over annually remained close to the 30,000.000-acre mark, and the number of fires per year has been consistently around 200,000. Fire control officers of the U. S. Forest Service attributed the big gain against fire losses to several factors, including increased public consciousness of the danger of fires and need for safety precautions; an intensive wartime fire prevention campaign by forestry agencies; improved fire fighting equipment and techniques; increased Federal and state funds for wartime protection; fewer campers and hunters in the woods owing to wartime restrictions. Weather conditions were not unusually favorable; from the fire-weather standpoint 1944 was an average year.

Of the total area burned in 1944, 85 per cent was in the 11 Southern States, owing largely to the fact that less than one-half of the southern forests are as yet under organized protection. For the United States as a whole, 513,572,000 acres are under some degree of systematic protection, while 129,928,000 acres still lack organized protection. Eighty-four per cent of the total acreage loss was in unprotected areas.

JAPANESE BALLOON MENACE

During the first half of 1945, preliminary reports indicated that fire losses continued below average. A special menace to western forests, however, was presented by the appearance of Japanese stratosphere balloons carrying incendiary bombs. Several hundred of these free-floating balloons were released in Japan in the early months of 1945 to be carried by prevailing westerly winds to the North American continent. The Forest Service and cooperating agencies intensified protection measures against this menace. Several companies of paratroopers were assigned by the Army to augment the Forest Service corps of "smoke jumpers" (parachuting fire-fighters). No serious fires resulted from the Japanese balloon barrage, but six persons were killed by a balloon bomb in southern Oregon.

DISASTROUS WESTERN FIRES

In the summer of 1945, numerous bad fires occurred in West Coast and Northern Rocky Mountain states. One of the worst fires in recent years broke out in Tillamook County, Oregon, in the same area ravaged by the disastrous Wilson River fire of 1933. The 1933 fire burned over 267,000 acres containing some 12,000,000,000 board feet of virgin timber. Much of the same area burned again in 1939. The 1945 fire which started in July was fought by several thousand men, including large numbers of Army and Navy personnel, but the fire was not finally brought under control until September rains checked its spread. Approximately 130,000 acres were burned over, completing the devastation of one of the finest timber-growing areas in the country.

COOPERATIVE FARM FORESTRY PROGRAM

There are approximately 140,000,000 acres of farm woodlands in the United States capable of growing commercial timber. Farm forests occupy about 18 per cent of all land in farms; in the South and Northeast, from 40 to 60 per cent. About one-third of the annual timber cut comes from farms. The importance of the farm output of forest products is increasing as virgin timber supplies dwindle. In general, however, farm woodlands are producing from one-third to one-half of what they could under improved forestry practices. Farm owners frequently dispose of their entire timber stand in a lump-sum sale, often at a fraction of its full value, and leaving their timberland unproductive for years to come.

To provide technical advice in the management of farm woodlands and marketing of woodland products, the U. S. Forest Service has initiated a special farm forestry program in cooperation with state forestry agencies. By June 30, 1945, 100 projects had been established, covering 403 counties. Forty additional farm forestry projects initiated by the Soil Conservation Service were transferred to the Forest Service in 1945.

In each project, the services of a technical forester are made available to woodland owners to work up management plans for their timber tracts, to assist in marking and measuring timber ready for harvest, to obtain competitive bids for the timber, and prepare a simple sale agreement which will protect the interests of both farmer and purchaser. This type of assistance is resulting in the farmer receiving more for the timber sold than he would have under the old lump-sum sale practice, and he is left with a stand of thrifty trees which will produce future crops. The Forest Service reports that the program is also becoming popular with mill operators since purchase of marked trees of known volume reduces the element of risk in their operation, and since the selection method of cutting furnishes the millman with larger, better quality logs, and gives him the opportunity for return cuts and assurance of continuity and stability of operation.

FOREST SERVICE ANNIVERSARY

The U. S. Forest Service reached its fortieth milestone in 1945. The Forest Service was established on Feb. 1, 1905, when the earlier Bureau of Forestry was reorganized and the forest reserves (later renamed national forests) that had been set aside from the unreserved public domain were placed under its jurisdiction. Governmental forest work actually began in the Department of Agriculture as early as 1876, with the appointment of a commissioner to study forest conditions in the United States. In 1881 a Division of Forestry was set up, and in 1901 this became the Bureau of Forestry. Through these earlier periods, however, the Government's forestry work amounted to little more than compiling information and offering advice.

During its 40 years of existence, the Forest Service has spearheaded the conservation movement in the United States. The National Forests under its jurisdiction have become the world's outstanding public forest system. In 1905 the science of forestry was almost unknown in America; Forest Service research has developed a broad foundation of technical forestry knowledge applicable to American conditions. Where the practice of forestry has been adopted by timberland owners, it is usually the result, directly or indirectly, of pioneering work of the Government's foresters.

A fortieth anniversary statement by Lyle F. Watts, Chief of the Forest Service, stated however that the biggest jobs in forest conservation still lie ahead. The downward trend of the forest resource has yet to be reversed. The bulk of the nation's forest lands are still handled with little regard for future productivity. Large areas of depleted land need to be restored to usefulness.

PERIODICAL PUBLICATIONS

Agricultural Education
1714 Locust Street, Des Moines, Ia.
Agricultural Engineering
American Society of Agricultural Engineers, St. Joseph, Mich.
American Agriculturist
Savings Bank Bldg., Ithaca, N. Y.
American Forests
American Forestry Association, 919 Seventeenth St., N.W., Washington, D. C.
American Fruit Grower
1370 Ontario Street, Cleveland, O.
Country Gentleman
Curtis Publishing Company, Independence Square, Philadelphia.
Cotton Trade Journal
Cotton Exchange Bldg., Memphis, Tenn.
Dairy World
608 South Dearborn Street, Chicago.
Farm Journal
Farm Journal Inc., Washington Square, Philadelphia.
Fishing Gazette
461 Eighth Ave., New York City.
Hoard's Dairyman
Fort Atkinson, Wis.
Journal of Agricultural Research
Superintendent of Documents, Washington, D. C.
Journal of Dairy Science
North Queen Street, Lancaster, Pa.
Journal of Farm Economics
American Farm Economic Association, Menasha, Wis.
Journal of Forestry
Society of American Foresters, Mills Bldg., Washington, D. C.
Pacific Fisherman
71 Columbia Street, Seattle, Wash.
Produce Guide
165 Duane Street, New York City.

Successful Farming
Meredith Publishing Company, Des Moines, Ia.

Wallace's Farmer and Iowa Homestead
1912 Grand Ave., Des Moines, Ia.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Assn. of Nurserymen, P.O. Box 355, Louisiana, Mo.

American Country Life Assn., 297 Fourth Ave., New York City.

American Farm Bureau Federation, 58 E. Washington St., Chicago, Ill.

American Forestry Assn., 919 Seventeenth St., N.W., Washington, D. C.

American Meat Institute, 59 East Van Buren St., Chicago.

American National Livestock Assn., 515 Cooper Bldg., Denver, Col.

American Ornithologists' Union, Ohio State University, Columbus, Ohio.

American Phytopathological Society, Bureau of Plant Industry, Washington, D. C.

American Poultry Assn., 3030 Brady St., Davenport, Iowa.

American Society of Agronomy, Agricultural Experiment Station, Morgantown, W. Va.

American Society of Animal Production, Kansas State College, Manhattan, Kans.

American Society of Equity, 311 Daily Star Bldg., Minneapolis, Minn.

American Society for Horticultural Science, Lock Box 299, Geneva, N. Y.

American Society of Mammalogists, Museum of Zoology, University of Michigan, Ann Arbor, Mich.

American Veterinary Medical Assn., 600 S. Michigan Ave., Chicago, Ill.

Association of Land-Grant Colleges and Universities, c.o. Experiment Station, Lexington, Ky.

Boyce-Thompson Institute for Plant Research Inc., 1086 N. Broadway, Yonkers, N. Y.

Dairymen's League Co-operative Association, Inc., 11 W. 42nd St., New York City.

Farm Women's National Congress, Clarksville, Ia.

International Farm Congress of America, Continental Bldg., Kansas City, Mo.

Izaak Walton League of America, La Salle Hotel, Chicago, Ill.

Jewish Agriculture Society, Inc., 386 Fourth Ave., New York City.

Middle Atlantic Fisheries Assn. Inc., 203 Front St., New York City.

National Audubon Society, 1006 Fifth Ave., New York City.

National Board of Farm Organizations, 1731 I St., N.W., Washington, D. C.

National Dairy Council, 111 N. Canal St., Chicago, Ill.

National Educational and Co-operative Farmers' Union of America, 1731 I St., N.W., Washington, D. C.

National Fertilizer Assn., 616 Investment Bldg., Washington, D. C.

National Grange, 970 College Ave., Columbus, O.

National Highways Association, Bass River, Cape Cod, Mass.

National Livestock and Meat Board, 407 S. Dearborn St., Chicago, Ill.

National Poultry Council, Davisville, R. I.

People's Lobby, Inc., 1410 H Street, N.W., Washington, D. C.

Society of American Florists and Ornamental Horticulturists, Inc., 600 S. Michigan Ave., Chicago, Ill.

Society of American Foresters, 825 Mills Bldg., Washington, D. C.

United States Livestock Sanitary Assn., 33 Livestock Exchange Bldg., Wichita, Kan.

Vegetable Growers' Assn. of America, c.o. F. L. Allen Co., Philadelphia, Pa.

Women's National Farm and Garden Assn., Inc., Amber, Pa.

DIVISION XII

MINERAL INDUSTRIES

GOLD AND SILVER

By Walter Renton Ingalls
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WORLD PRODUCTION OF GOLD

According to American Bureau of Metal Statistics the world's production of gold in 1944 was 27,100,000 oz. against 29,540,000 oz. in 1943 and an all-time maximum of 40,925,000 oz. in 1940. These totals comprise conjectures in each year of 4,000,000 oz. for the production of Russia (including Siberia) and 1,000,000 oz. per annum for Japan, Korea, and Manchuria, no data having been received from any of those countries since several years prior to the war.

The decline in production in recent years has been owing to the withdrawals of labor and materials from gold mining in the United States, Canada, Australia, and elsewhere during the war. The Witwatersrand of South Africa, which produced about one-third of the world's production in 1940, was also affected in this way but much less severely.

The same condition continued during the first half of 1945 during which production in the United States was only 419,000 oz. against 505,000 oz. in the corresponding period of 1944. Similarly the production of Canada in the first semesters was 1,329,000 oz. in 1945 against 1,524,000 oz. in 1944. On the other hand the production from the Witwatersrand in 1945 has been steady at about 1,000,000 oz. per month, which was about the average rate of 1944.

GOLD PRICE AND MINING FACTORS

The British Treasury buys gold from almost all producing countries in the sterling area, except India where gold is sold in a free market. At the beginning of the war the Treasury undertook to buy all gold offered at 168 s. per oz., which price was based on what could be realized in the United States less cost of shipment, insurance, etc. Following reduction of such costs the British Treasury raised its price to 172 s. 3 d. per oz., effective June 9, 1945. This was of special benefit to the South African industry where the "dying" mines and the producers from very low-grade ore were having a hard time.

Five important mines of the Witwatersrand are in the "dying," *i.e.* nearly exhausted stage, and it is expected that the subtraction of their production will not be offset for some time to come by production from the modern deep-level mines, the development of which is naturally slow. These mines described as "deep" and "ultra-deep" are opened to a depth of 8,600 feet below the surface. (The Ooregum mine in the Kolar gold field in India had attained a depth of 8,800 ft. as far back as 1943.)

Following the victory over Germany and the consequent easing of munition requirements, resumption of gold mining in the United States was permitted by the War Production Board, effective July 1, 1945, revoking the prohibitory order of Oct. 8, 1942. About a fortnight before all restrictions of gold mining in Canada were lifted. This was too late in the year to lead to resumption of dredging in Alaska and the Yukon, the season being then too far gone to permit proper preparation of the ground, and also there was insufficiency of labor

GOLD HOARDS IN GERMANY

There was in 1945 much interest in the seizures of gold in Germany and Japan. In a salt mine in Germany a hoard of 100 tons of gold in bullion and coin was found. According to a military report early in June, experts were not then satisfied that all of the gold of Germany had been discovered. In the meanwhile all gold discovered in Germany was frozen until the claims of several governments could be proved, and herein were manifest tangles. For example: The Banque Nationale de Belgique gave the Banque de France a large quantity of gold for custody just before Germany invaded Belgium. Some of this was sent to America, some was sent to Takaradi, in West Africa, and the remainder was kept in France. When the Germans occupied France they took large quantities of gold back to Germany. Belgium alleges this was its gold. The Banque de France is reported to have reimbursed Belgium for it. The American and British claims to the gold found in their areas in Germany may come to be considered as legitimate booty of war.

According to a study of gold reserves published in the *Federal Reserve Bulletin* for November, 1944, the German gold reserve had shrunk from $650,000,000 at the end of 1928 to $90,000,000 at the end of 1933. In the worldwide depression of that period Germany was forced completely off the gold standard, most of its gold having then been exhausted. By the end of 1940 Germany had lost about all that remained. Accepting this survey, all of the gold existing in Germany in 1945 must have been obtained from elsewhere. According to the same authority the possession of gold by adjacent countries was as follows, in thousands of ounces:

	At end of 1928	At end of 1933	At end of 1940
France	60,716	146,105	57,257
Netherlands	8,466	17,900	17,600
Belgium	6,047	18,868	21,286
Italy	12,820	17,900	3,171

In reporting these data in ounces troy there is no confusion in respect of the value, which was changed from $20.67 to $35 by the Gold Reserve Act of the United States, Jan. 31, 1934. A ton of 2,000 lb. avoirdupois comprises 29,166 troy ounces and at $35 per ounce is therefore a little more than $1,000,000 (exactly $1,020,800).

GERMAN LOOTING OF GOLD

The above data indicate that France and Italy had been losing gold prior to the German occupation. There is no doubt that since 1940 the Germans took gold from Austria, Czechoslovakia, France, Hungary, Italy, and Poland, but much of the gold obtained from these sources passed to neutral countries in settlement of debit balances. It is known that Germany used looted gold to settle international debts and help finance the war. Thus we see from the estimates of the Federal Reserve System that the gold reserves of Switzerland, Sweden, and Turkey were all substantially larger at the middle of 1944 than they were at the end of 1940. It may be, therefore, that at the time of the conquest the gold remaining in Germany was not much more than what was captured in the salt mine. This subject can not be pursued any further with any assurance of accuracy. In none of the countries of Europe is there any gold production that merits statistical attention apart from a little in Sweden and Rumania. The Russian production is mainly Asiatic.

SEIZURE OF GOLD AND SILVER IN JAPAN

It was reported in press dispatches from Japan, Oct. 10, 1945, that General MacArthur had seized 58,000,000 oz. of gold bullion, silver bullion, and gold coin valued at $253,000,000, plus 33,422 oz. of platinum and 27,122,417 yen in silver coin. On the basis of the current exchange rate 15 yen equals $1. Some of this bullion was supposed to be loot from China, and elsewhere. No official data in respect of this subject have yet appeared.

SILVER PRODUCTION

No complete estimate of the world's production of silver has been possible since 1940, in which year the aggregate was 273,400,000 oz., which included about 30,000,000 oz. estimated conjecturally. However, of the estimated world's total in 1940 about 210,000,000 oz. was from the several silver-producing countries of North America, Central America (including the West Indies), and South America, and for those groups there is complete annual data through 1944. These show a steady decline, especially in the countries of North America. A reason for this is that their silver production is largely derived as byproduct from copper and lead ore and consequently has diminished along with the decline in the production of those base metals.

The production of silver in the United States in 1945 was about 30,000,000 oz. against 37,370,000 oz. in 1944. The production in Canada was about 13,000,000 oz., and in Peru about 12,000,000 oz., these being about the same totals as in 1944. Production in Mexico in the first six months of 1945 was about 32,000,000 oz. but there was some increase right after the middle of the year and the total may be 65,000,000 oz. against 63,000,000 in 1944.

SILVER STOCKS IN THE UNITED STATES

The stock of silver held by the U. S. Treasury was 97,286 tons avoirdupois at the end of 1942, 92,111 at the end of 1943, and 80,406 at the end of 1944. Of the last total about one-half was held as security against silver certificates used as currency and 30,000 tons had been loaned to defense plants for use as electrical bus bars and otherwise.

INDUSTRIAL USE OF SILVER IN THE UNITED STATES

During the war the industrial use of silver in the United States rose from an average of 33,000,000 oz. per annum in the triennium immediately prior to 1941, to an annual average of 120,000,000 oz. in the triennium following 1941. This exhausted stocks of foreign silver available at 45c. per ounce, which was the OPA ceiling. The shortage was ameliorated by passage of the Green Act liberating several hundred million ounces of Treasury silver, but only at a price of 71c., this liberation expiring at the end of 1945.

Use of the foreign or lower-priced silver was restricted to the most essential war needs, and users of silver for other purposes, such as the manufacture of silverware and jewelry, were required to use the higher-priced domestic or Treasury silver. The orders of WPB limiting the uses of silver were revoked Aug. 20, 1945, and continuance of different prices then became no longer practicable. Consequently OPA established 71.111c. per ounce as the uniform price for all silver—both foreign and domestic—effective Sept. 21, 1945.

FOREIGN SILVER MARKETS

Following the lifting of the price for foreign silver by OPA, the markets abroad rose commensurately. In Bombay silver rose one rupee three annas (32c.) and industrial corporation shares rose sharply. Even more acute was the disturbance in Mexico, which is not only on a silver monetary basis but also is a large producer of silver. The Bank of Mexico discontinued coining silver in as much as the rise in price made the peso worth 27.36c., instead of about 20c., which would make it profitable to melt coinage in circulation for the silver content. About 400,000,000 pesos were believed to be in circulation among individuals plus about 100,000,000 held by banks.

By decree, Sept. 25, 1945, the Bank of Mexico was given a monopoly in buying and selling all but industrially worked silver. By this decree the bank alone can export coin and bar silver, and silver producers must sell silver to the bank, which will supply industry. By another decree, subsidy was abolished and taxes were changed. The outcome of these readjustments was a present tax on silver of about 17c. an ounce, leaving about

9c. an ounce of increased value to the producers, who were promptly notified by labor leaders that they expected labor to have a share of the new profit.

The Canadian Government maintained its ceiling price of silver at 40c., Canadian funds, which was approximately in line with the American price when it was 35⅛c. When the price in the United States was raised to 44¾c. in September, 1942, the Canadian Government took no corresponding action.

IRON AND STEEL

By Thomas C. Campbell
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THE LABOR PROBLEM

Steel company executives in 1946 would like to spend most of their time and energy on steel production and steel market competition, but the cards seem to foretell a different story. Unfortunately for them one of their most insistent problems will continue to be labor relations. Faced with one of the biggest strikes in its history, the steel industry may well ponder over the outcome of its current labor controversy, because whatever settlement is made will reflect the trend of labor relations for some time to come.

Since 1936 the steel union has spent most of its time obtaining recognition and higher wage rates. It was assisted considerably by the Administration at Washington in its fight for organization and wage demands. Now part of that phase of the union's activity seems to be at an end.

Unless the United Steel Workers of America (USWA) initiates a program of closer cooperation with steel companies for the purpose of increasing productivity per employee as well as assisting management in its competitive market angles, it will eventually become nothing more than "another union." If it becomes this, it will ultimately suffer a governmental strait jacket in the form of strict labor legislation.

STEEL MANAGEMENT AND THE PUBLIC

On the other hand steel management has only recently awakened to the fact, long known by others, that a positive relationship with the public can only be enhanced by a cutting of red tape and managerial egotism. For years the steel union has beaten the industry in obtaining space in the national press on controversial matters. The result has been that the union has obtained a far wider dissemination of its views than has management.

Some sources believe that once the present wage controversy is settled, the steel companies and the union can settle down and "enjoy" the production of steel sufficient to meet the nation's huge demand. The union now considers itself to be just as strong as the steel industry. On that basis it can be expected that the USWA will not rest, can not rest, and must continuously make fresh demands in order to keep the support of its large membership.

It is regarded as probable that once the union has obtained a higher wage rate in the present controversy and once it has offered terms to prevent unauthorized strikes, it will launch a drive for some sort of a guaranteed annual wage. When the current drive to keep the pay envelope at the wartime level is successful or partly so, it is logical to suppose that the annual wage demand will become a rallying battle cry for the union.

Since it will take some time for such a thing as an annual wage for steel workers to be debated, negotiated, accepted, or rejected, it will, however, serve to keep the union united in a common cause. Therefore, any steel official who looks for an end to his labor troubles would appear to be naive.

PRICE POLICY

Closely associated with the steel industry's labor problem is its price policy. Hemmed in by governmental red tape on one side and union demands on the other, the steel industry has unsuccessfully attempted to obtain a price increase. Washington officials dodged the whole price decision with the worn-out phrase, "We will look over your earnings for the fourth quarter." If any industry or company has been "looked over" on the question of price, it is certainly the steel industry.

It is true that the industry during the war did better pricewise than during the pre-war period because it was able to obtain the full published price. Furthermore, on shipments to areas not previously termed normal markets, the industry was allowed to charge full freight from the point of manufacture to the point of consumption. Also during the war the industry was able to charge and obtain many extras which were conveniently forgotten during the competitive pre-war periods.

Admitting this, it does not necessarily follow that the industry has "made out well." It merely shows that, if it had not been for these factors, the industry could hardly pay an average wage rate of more than $1.15 an hour, compared with 85 cents an hour a few years ago and 65 cents an hour in 1936.

Contrary to some backroom talk, the industry is just as aware of the peril in too high prices as are economists or market experts. Nobody realizes more than the steel industry that its future markets are endangered by inroads of other metals and products, if the price of steel were to go too high. Steel men are not being lulled to sleep by the fact that the greatest proportion of steel produced can not successfully be replaced by other materials.

Unfortunately the return on practically all steel products which do not face strong competition for other materials is so low that their load must be carried by the profits of some of the more or less specialized items. However, the latter happen to constitute that small portion of steel output which could suffer the greatest loss from other competitive materials.

THE QUESTION OF BASING POINTS

Already on its way, but still having some distance to go, is the recent trend towards more basing points. Several months after the Supreme Court had ruled in effect that a single basing point for an item made at more than one location was illegal, the U. S. Steel Corporation began multiplying its basing points. Probably realizing that sooner or later it would be a target for the Federal Trade Commission in the latter's drive for an F.O.B. mill pricing system, the corporation completed studies on the feasibility of naming additional basing points.

The first action was taken on stainless steel in 1944 when it went from a single basing point to a multiple basing point product. This general pattern of naming the place of manufacture of a product as a basing point was followed through on other steel items by U. S. Steel and by some other companies. The general program has by no means been completed.

It is expected that other steel companies will eventually increase their number of basing points with the ultimate result that the city at or near the point of manufacture will be made a basing point for the item made at that location.

The long-term tendency of multiplying basing points may cause some drastic changes in steel output geographically. For instance, in the case of the Pittsburgh district where competition with newly established eastern basing points will be keen, it may be that several steel companies will abandon some equipment there and replace it at a more strategic market location.

COMPETITIVE FACTORS

As a byproduct of the increase in the number of basing points, the search for technological improvements, the increase in wage rates, and the keener competition in the steel industry will once and for all eliminate what is left of the so-called umbrella under which the largest company or the larger companies automatically contribute to the position of the small producers.

For years larger steel companies have sold huge quantities of semi-finished steel to non-integrated firms only to face competition from those companies in the sale of finished steel products. It was not many years ago that a subsidiary of one company sold semi-finished material to an outside firm which in turn engaged in stiff competition with another division of the first steel company.

Now with larger steel mills requiring semi-finished steel for their own finishing mills, there is a market disposition drastically to slash the tonnage of semi-finished steel being shipped to the small non-integrated makers. For this reason it is expected that, unless management of the smaller companies can, like a few units in that category, find their own markets in the form of specialties or special services, the going may be so rough as to cause fatalities.

STEEL PRODUCTION

Turning to steel production which in 1945 amounted to about 80,000,000 tons, a drop of more than 9,500,000 tons from 1944, output in 1946, if the steel strike is not prolonged, may run as high as 83,000,000 tons. The crux of the year's production will depend upon product mix, possibility of price relief, and the abandonment or non-use of high-cost equipment.

No steel producer in 1946 will continue to make products on which the loss is too great nor will he utilize old equipment which is too costly to operate. It would be worth more to the company to operate at a lower rate, making products which reflect a better return than to operate at a higher rate with products which must be "carried" by more profitable items.

The industry will not lack a demand for steel over the next few years at least. Backed-up requirements for peacetime production appear to be heavy enough to support a steel ingot rate of from 70 to 80 per cent for the next two or three years. Some analysts in the steel industry are estimating four good operating years before any serious decline is noted.

The production of alloy steel in 1945 declined somewhat from wartime peaks. About 11 per cent of total steel production in 1944 constituted alloy steel, whereas in 1943 it accounted for about 15 per cent of total steel output. It is believed that, while the participation of alloy steel will not decline to the pre-war figure of 6 per cent, it may drop to around 8 per cent in 1946.

Open-hearth operators in 1945 were rapidly regaining the alloy business which they lost to the electric furnaces during the wartime peaks. In 1945 open-hearth furnaces supplied slightly more than 67 per cent of the alloy steel as against 66 per cent in 1944. During some months in 1944 the participation of the open hearths had been cut to as low as 64 per cent.

Because of the drop in alloy steel output and the increased use of open

PIG IRON AND STEEL OUTPUT IN NET TONS

Year	Pig Iron	Steel
1945	53,700,000*	80,000,000*
1944	61,939,000	89,642,000
1943	62,769,947	88,836,366
1942	60,903,304	86,031,931
1941	56,686,604	82,839,259
1940	47,398,529	66,982,686
1939	35,677,097	52,798,714
1938	21,460,164	31,751,990
1937	41,582,550	56,636,945
1936	34,752,689	53,499,999
1935	23,937,423	38,183,705
1934	18,075,202	29,181,924
1933	14,947,074	26,020,229
1932	9,835,227	15,322,901
1931	20,637,516	29,058,961
1930	35,562,429	45,583,421
1929	47,727,661	63,205,490
1925	41,104,634	50,840,747
1920	41,357,105	47,188,886

* Estimated.

hearths for making alloy steel, electric steel capacity during 1945 was not utilized to anywhere near the extent experienced in 1943. In the third quarter of 1945 electric steel capacity operated at only 51 per cent as against 76 per cent in the third quarter of 1944 and 86 per cent in the first quarter of 1944.

The existence of such a large amount of unused capacity will serve to accentuate the post-war competition between open-hearth alloy steel and electric alloy steel. There is no indication that open-hearth makers will give up any business which they feel is theirs.

ALLOY STEEL OUTPUT

(Thousands of Net Tons)

	Open Hearth	Per Cent of Total	Electric	Per Cent of Total	Total
1939............	2,459	76.7	749	23.3	3,208
1940............	3,675	74.0	1,288	26.0	4,963
1941............	5,740	70.1	2,462	30.0	8,202
1942............	8,133	70.6	3,393	29.4	11,526
1943............	9,217	70.1	3,933	29.9	13,150
1944............	7,010	65.9	3,623	34.1	10,633
1945............	5,740	67.2	2,803	32.8	8,543

TOTAL STEEL OUTPUT

(Thousands of Net Tons)

	Alloy	Per Cent of Total	Carbon	Per Cent of Total	Total
1939............	3,212	6.1	49,587	93.9	52,799
1940............	4,966	7.4	62,017	92.6	66,983
1941............	8,206	10.0	74,633	90.0	82,839
1942............	11,526	13.4	74,506	86.6	86,032
1943............	13,150	14.9	75,235	85.1	88,385
1944............	10,633	11.9	79,009	88.1	89,642
1945............	8,543	10.7	71,557	89.3	80,000

COAL AND COKE

By R. Dawson Hall
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PRODUCTION FACTORS

In 1945, the production of bituminous coal and lignite was 576,000,000 net tons as against 619,576,000 in 1944, a decrease of 43,576,000 tons and a 7 per cent drop. The output of anthracite dropped from 63,701,000 to 54,476,000 tons, a decrease of 14.5 per cent. Production of beehive coke declined from 6,974,810 in 1944 to 5,194,750 in 1945, a fall of 25.5 per cent. All the coal made into byproduct or beehive coke is credited to bituminous and anthracite production depending on the source of the coke, the use of anthracite being of insignificant proportions. These are tentative figures; the actual figures must await further returns. The bootleg coal produced in the anthracite region is not included in these figures nor will it be included in the final result. If it were, the percentage drop in production would be still greater for the bootleg production has declined, and most of the men have returned to legitimate operations.

Production was hampered all through the year by labor disturbances, and always by lack of manpower and supplies. In making its demands, the aim of the labor union, the United Mine Workers of America, was to concentrate its demands on subsidiary payments, on a royalty of 10¢ a ton to be paid to the union and to be expended by that organization for the health, rehabilitation, and "economic protection" of the mine workers, on vacations, on payments for transportation time involved in traveling in the mine to and from work and on other similar provisions —so-called "fringe compensations"— rather than on increases in basic wage. Thus, it ingeniously planned to escape the restrictions of the Little Steel formula. It claimed that these were not wage concessions, but the removal of injustices in working conditions.

SOFT COAL CONTRACT

In order that a strike could be declared legally, April 1, when the contract in the bituminous and lignite mines would expire, the U.M.W.A. on Feb. 26, 1945 served notice on Secretary of Labor Frances Perkins, under the Smith-Connally Act, that "a labor dispute exists" between it and the bituminous coal operators. The intention was to start the "cooling off period" so long before the expiration of the contract that the period would end before the contract expired and a strike could start without delay.

In the name of the Southern Coal Producers' Association, E. R. Burke, its president, filed, with the National Labor Relations Board, a petition asking that no strike vote be taken, because there was no dispute; both sides were still preparing to discuss a new contract in place of an agreement that would not expire until April 1. On Mar. 12, Burke's request was denied, and 140 field examiners and 4,000 special agents were hired to take the poll, which followed Mar. 29 and resulted in an overwhelming vote, 208,797 to 25,158, in favor of such a suspension.

Prior to that time, the operators offered to concede, Mar. 16, full-time for travel from the mine portal to the working face and back to the mine portal, "full portal-to-portal time" as it is officially designated. Under the expiring contract, payment was made for only two-thirds of the time thus expended or 50¢. This payment the operators agreed to make 75¢. They offered to pay also 4¢ per hour extra to men working on the second shift and 6¢ per hour extra for the third shift. They refused to pay for the time spent for lunch and insisted that overtime should start only after seven hours of work. The concessions would have raised the day's wage 49.6¢. Another concession was vacation pay to employees with one year of service equal to 2 per cent of straight time for the preceding year (a minimum of $50), while employees with five years of service or more would get 4 per cent (a minimum of $100). The demand for a participating royalty was rejected.

An extension of the existing agreement was ordered, Mar. 31, by the War Labor Board on a basis that would make the contract, when signed, retroactive to April 1. The operators accepted this arrangement, but would not stipulate their acceptance of financial responsibility for fulfilling the retroactive clause, nor post a security bond or put money in escrow for fulfillment of the pledge. On April 1, J. L. Lewis, president of U.M.W.A., advised the W.L.B. that the union recommended its membership to remain at work.

On April 3, despite orders from the union to continue working, 80,000 soft-coal miners struck. In Alabama, 95 per cent of the men were idle. Negotiations continued but reached a deadlock, April 6. The operators stated that they would hand over the matter to the W.L.B., the following day, but as Lewis showed signs of relenting, the Labor Board was apprised that the operators would make another attempt to conclude a contract. On April 10, there being still no agreement, Secretary of the Interior Ickes took possession for the Government of 235 bituminous mines in seven states. As a result, a new agreement was signed calling for an increase in basic earnings as estimated by the operators at $1.25 to $1.30 a day putting up coal costs about 25¢ a ton.

Payment for travel and luncheon time for a six-day week was increased $6.44 or $1.07 a day. Four cents an hour additional was granted to second-shift workers and 6¢ an hour to third-shift employees. Annual vacation pay was raised from $50 to $100. Mr. Lewis relinquished his demands for 10¢ a ton "royalty" and for the inclusion of most of the foremen in the union, as also for several wage concessions and changes in working conditions. The W.L.B. promptly approved the agreement, April 23, estimating the increase in earnings of the employees from all the several changes as $1.02 per day for a six-day week. A large part of the increase stemmed from full portal-to-portal pay, 81¢ per day for all miners. The U. S. Circuit Court of Appeals had interpreted the law as requiring full-time compensation for such travel.

ANTHRACITE CONTRACT

On March 27, Lewis for the U.M.W.A. filed a notice of a labor dispute between the Pennsylvania anthracite operators and the miners, excluding the Philadelphia & Reading Coal & Iron Co., then under Federal control. On April 18, the 29 mines of this company were restored to it after seven months of government operation. During the month of April, the mine workers and operators tried without success to conclude a contract. On April 26, the vote was taken and the miners elected to strike by a vote of 41,952 to 6,697 (78,789 being eligible to vote), and on May 1 all the mines were idle.

The operators already had agreed to work the mines for 30 days with pay retroactive to May 1, if a settlement should be reached within that period but Lewis refused any such arrangement. A wage increase of 25 per cent was demanded, also a 10¢ royalty per ton. Second shifts were to receive 10¢ additional pay per hour and third shifts 15¢. In all, there were 30 demands. After three days of idleness, Secretary Ickes took possession of the mines and called on the mine workers to return to work on May 7, but 363 operations still remained closed, awaiting word from Lewis, who remained silent. On May 17, the U.M.W.A. accepted a new agreement with provisions for underground travel-time pay, overtime for work exceeding seven hours a day and 35 hours a week, differentials of 4 and 6¢ an hour for second and third shifts respectively, and a $75 instead of a $50 vacation allowance. This agreement was approved by the W.L.B. June 2.

SUPERVISOR STRIKE

A long time earlier, Lewis had established a section of the U.M.W.A., termed "District 50," in which all persons whose fortunes were in any way linked with coal, even in the most remote manner, might invoke protection. One of the more reasonable affiliates of this "district" would have been the United Clerical, Technical and Supervisory Workers Union, as it included such persons as were employed by coal companies, had it not been that the contracts made with the U.M.W.A. expressly excluded the unionization of these representatives of the management. On Sept. 21, the foremen belonging to this union and located at four coal mines of the Jones & Laughlin Steel Corp., walked out, following a N.L.R.B. strike vote, and, on Sept. 28, after the strike movement had spread, Lewis requested the bituminous coal operators to meet in Washington to settle the question of the recognition of the U.C.T.&S.W.U. On their refusal, Lewis dubbed their action "insolent." At that time, 105 mines with a total production of 228,000 tons per day and employing 42,169 men had closed.

When the supervisors of a coal mine no longer work, the mine must close because the law rules that the presence of such men is necessary for safe operation. It is stated that, in many instances, the mine workers compelled the supervisors to forsake the mines and join the union and thus excused their own absence from the mines. They tried to get unemployment compensation as being laid off by reasons beyond their control.

Both sides in the controversy finally agreed to confer with Secretary of Labor Schwellenbach, Oct. 6. The conference lasted three weeks until 210,000 miners were idle causing a loss of more than half the daily national tonnage. The Solid Fuels Administration for War set the total production loss at 13,000,000 tons, when Lewis, Oct. 17, without any explanation ended the strike of both supervisors and supervised for which he had claimed consistently he had no responsibility, but he stipulated no fines must be assessed or collected or a strike vote would be requested of the N.L.R.B. The National Bituminous Coal Operators' Negotiating Committee agreed that the operators, in view of the national crisis, would overlook the fines provision which the contract with the mine workers contains.

STRIPPING PROGRESS

In 1944, of the bituminous and lignite tonnage, 15.3 per cent was produced by stripping the material from above the coal and mining the coal thus exposed. That proportion in 1942 was only 11.5 per cent. Great progress recently has been made in "outcrop stripping" where the coal at the edges of the deposit is covered by such a weak and shallow capping of rock that it can not safely and economically be recovered by underground mines. Such stripped coal, as is covered by sufficient protective rock and as is, on removal, cleaned and prepared, enjoys an increasing reputation, though some stripped coal, especially outcrop coal, is still indifferently prepared for the market. Exposure reduces sulphur content, and suitably mined and prepared stripped coal should improve the deep-mined coal where mixed with it. Some of the premium coal producers are now stripping and mixing the product with the output of the mine.

TRAINING MINE CRAFTSMEN

An employee-management forum has been introduced at the mines of the Pennsylvania Coal Co., Scranton, Pa. to discuss mine technique. A school started in Logan County, W. Va., to train men for war work soon drew off excess labor to distant towns and was about to close. Instead it was reorganized to train workers in and for the mines. Its teachers are trained by men supplied by the Island Creek Coal Co. and the West Virginia Coal & Coke Co.; other sources that can furnish such help are the State Department of Mines, W. Va. University, the United Mine Workers, and machinery manufacturers.

A machine shop, well equipped, a drafting and blueprinting room, a welding shop, a forging department, an electrical shop including the framework of a house for house wiring, and a mine entry with side rooms constructed of wood are provided for instruction in the several mine crafts. Of 172 enrolled students, 15.1 per cent come from a farm area and 17.4 per cent are using the school for bettering their knowledge of their several crafts.

Thirty-four bituminous operating companies in Pennsylvania and West Virginia and 15 anthracite companies in Pennsylvania are using the job-relations training course of the War Manpower Commission's Training within Industry service. The school for training miners, sponsored by the Lehigh Valley Coal Co., at Wilkes-Barre, and Pittston, Pa. is to be extended to Scranton, Dallas, Berwick, Shickshinny, and Tunkhannock, all in Pennsylvania. Nine scholarships—four for under-graduates (a term of four years), four for master's degree (a one-year course), and one for a doctor's degree (three-year course)—have been offered by the Sahara Coal Co., Chicago, at the University of Illinois. Preference is to be shown to applicants from Saline County (where the company operates mines) and to those whose fathers are now, or were formerly, employed by the Sahara Coal Co. A rescue station, sponsored by operators in the western part of Colorado, has been established at Somerset, Col. to serve seven mines and to provide a fully fitted six-man team.

PORTAL-TO-PORTAL PAY

Whether bituminous-coal miners are entitled to pay for all the time spent within the mine, including going to and from their work (portal-to-portal pay), was decided in favor of the miners by the Fourth U. S. Circuit Court of Appeals, Oct. 6, 1944. On Jan. 5, 1945, the U. S. Supreme Court agreed to review the issue, granting a writ of certiorari to the Jewell Ridge Coal Co., by whom the "right" had been contested. The case came up for hearing, March 9, and portal-to-portal pay was upheld by a 5-to-4 decision, May 7, as mandatory under the Federal Wage and Hour Act.

Justice Murphy declared underground travel in bituminous coal mines "bears all the indicia of work" —physical and mental exertion, exertion controlled or required by the employer and exertion pursued for the benefit of the employer and his business." Payment has not been customary, but the act was not intended to codify customs that allowed "the employer to claim all of the employee's time while compensating him for only a part of it." The dissenting opinion declared that the act was not intended to overthrow existing contracts made by collective bargaining.

STRIPPING LEGISLATION

The public continues to protest at the "unsightliness" of the overturned surface at strip mines. West Virginia and Pennsylvania passed laws requiring bonds to be given for each acre stripped. In Ohio, Illinois, Missouri, and Indiana, efforts were made to regulate stripping, but without avail, for many believe that the land is more fertile after stripping than before, more picturesque after reforestation, and a source of revenue to the community which receives a big price for the coal land and returns from the wages of the miners, thus being benefited by the operation.

STATE LEGISLATION

West Virginia requires that the ground be restored to its former condition and that vines, trees or shrubs be planted, under the specifications to be set forth by the Mines Department and the West Virginia University Agricultural Experiment Station. Bonds of $500 an acre or a minimum of $1,000 are required. The Pennsylvania law requires that a bond be pledged of $200 per acre up to a limit of $1,000 to assure compliance with legislative requirements. A license fee of $100 is demanded. Three suits have been promptly filed against the enforcement of the law.

In Ohio, Governor Lausche gave the stripping bill every assistance despite Deputy Solid Fuel Administrator C. J. Potter's opposition, who declared it would hamper the war effort. The bill failed, 58 to 53. In Illinois, the Paul Powell bill, levying a tax of 4¢ a ton on strip-mined coal after Sept. 1, 1945, with the product of the tax to be used to restore the topography of the terrain, actually passed with a vote to spare, but Governor Green vetoed it, because he was opposed to all new taxes at this time and because it was discriminatory. In Missouri, the Neel Stripping bill was killed by a vote of 55 to 45, but a bill to assess 5¢ a ton was introduced later. The Indiana bill was defeated 22 to 62.

GAS TURBINES IN LOCOMOTIVES

A fund of $1,100,000 has been established by six major eastern railroads, three large coal companies, and Bituminous Coal Research, Inc. A Locomotive Development Committee has been created to administer the fund. The purpose is to incorporate the gas turbine in the design of locomotives using coal as fuel. Dr. J. L. Yellott will direct the investigation. At present, it appears that the method of operation will be burning pulverized coal and removing mechanically as much flyash as possible. Johns Hopkins University and the Institute of Gas Technology will study the pulverization of the coal, and Battelle Memorial Institute its combustion and the problem of ash removal. The coal will be pulverized by (1) subjecting the crushed coal to a high pressure of air or steam filling its crevices, and (2) passing this coal through a nozzle to a chamber at low pressure, where the entrapped air or steam will expand and burst the coal particles. The coal will be burned at a pressure of 60 lb. per square inch. An attempt will be made to combine the combustion chamber with a cyclone to remove large flyash particles to a degree needed to protect the turbine blades against excessive erosion. The temperatures will be kept below 1,200° F. to prevent slagging and 400 per cent excess air should eliminate smoke.

SMOKE ABATEMENT

Recognizing the difficulty during the war in getting the right kind of coal to suit installed equipment and in getting replacements for present equipment, most cities have been lenient in enforcement or in initiating new ordinances. The war over, the Commissioners of Allegheny County, Pennsylvania moved, Nov. 13, to draft anti-smoke regulations patterned after Pittsburgh's considerate ordinance of 1941. Anticipating a revival of activity in drafting of such ordinances, the Coal Producers Committee for Smoke Abatement, at Cincinnati, O., Oct. 15, undertook once again to assist municipal authorities in cities using Appalachian and western Kentucky coals in preparing technical data on which to base their smoke-abatement ordinances. Accordingly, Toledo, O., which had passed an ordinance restricting the "kind of coal" that may be burned in hand-fired furnaces, will be surveyed by employees of this coal-industry-and-railroad group.

STEAM JETS OVER FIREBED

Use of steam-jets to eliminate smoke in furnaces is an old device, but until the Battelle Memorial Institute for Bituminous Coal Research experimented with it and developed standards of construction it was a hit-and-miss, and always a noisy and extravagant device. Following tests at Baltimore, Md., the Pennsylvania Railroad announced that it would install such jets on all of its steam locomotives where they may, by any possibility, emit obnoxious smoke. The Illinois Central Railroad announced its intention later to put these jets on its 80 switching locomotives in Memphis, Tenn. Late in October, 666 locomotives on 24 railroads had been equipped with the new type jets and silencers; most of these railroads expect to continue to install them in their steam locomotives.

BATTELLE RESEARCH

Studies have been made by the Battelle Memorial Institute to determine the quantity of rock salt or flake calcium chloride to use for freeze-proofing coal shipments for several anticipated outdoor temperatures, and to determine where the material should be applied. Corrosion of stoker screws in residential underfeed stokers was found by B.M.I. to be owing to (1) evaporation of moisture from the coal by the heat derived from the retort end of the tube, (2) backward diffusion of water vapor along tube toward bin or hopper, and (3) condensation of moisture on coal and screw.

Even quite dry coal will suffice to cause such corrosion. Oxidation of the pyrite in coal makes it acid, and corrosion is thereby accelerated. Calcium chloride, if present in the coal mass, also accelerates corrosion, but the three conditions detailed are more important than the acidity of the coal or the presence of calcium chloride.

Waters dripping through mine roofs where sulphur is present are found nevertheless, declares the B.C.R. Mining and Preparation Committee, to be alkaline wherever tested, but the mine waters leaving such mines sometimes are acid, sometimes alkaline. Acid mine waters are predominately sulphates of iron, aluminum, manganese, calcium, magnesium, sodium, and probably potassium. Alkaline waters show no appreciable quantities of iron, aluminum or manganese in solution. The effectiveness of mine sealing in reducing sulphate formation, the importance of the action of bacteria in acidifying mine waters, and the effect of the oxidation of pyrite on the deterioration of mine roof will be studied. Coats of paint, in the Appalachian region, have not been successful in protecting mine roofs, but further tests seem justified.

Flash drying, in which fine coal is dried in suspension in a vertical stream of mingled heated air and combustion gases, will be tried as a means of reducing the surface moisture of coal being prepared for the market. Picking tables need more suitable, rather than more abundant light, to enable pickers to differentiate between bony and pure coal. Cost of district residence heating has been studied at Columbus, O., by the B.M.I. The committees of the American Mining Congress are continuing their work on mining problems.

OIL-SHALE RESEARCH

On Feb. 24, 1945, the U. S. Bureau of Mines announced its selection of Rifle, Col., as a location for a $1,500,000 oil-shale plant, which is to be operated in connection with a laboratory to be constructed at the University of Wyoming, Laramie, Wyo. The plant will mine 200 tons of shale per day. A $17,500,000 converted war plant at Louisiana, Mo., is to be used by the Bureau for the production of synthetic gasoline from coal and oil. A new laboratory and research unit will be erected by the Bureau to conduct experiments in the production from coal of the gases required in the manufacture of synthetic liquid fuel.

The possibility of pelletizing fine sizes of anthracite and making the pellets suitable for shipment and combustion is being studied at Pennsylvania State College, State College, Pa. A bill has been signed in Illinois providing for an $80,000 research project to determine the commercial possibilities of Illinois coal. The Lehigh Navigation Coal Co. is building a plant to utilize the carbonaceous refuse from three breakers for the manufacture of a light-weight aggregate to be used with cement.

HAULAGE

During 1945, careful attention was given to the possibility of improving haulage methods. Always dangerous underground, higher speeds and heavier loads have increased these dangers, but these risks have been met by improved equipment. However, modern haulage, being electrical, has increased dangers considerably. In the Pittsburgh region, several committees have been appointed to study point by point, the several phases of this subject: heading driving, track construction, wire erection, maintenance of both headings and electrical equipment, location and handling of reclosing circuit breakers and the fighting of mine fires.

In *Information Circular 7032,* the U. S. Bureau of Mines discusses the two-wire overhead trolley system, battery and Diesel locomotives, their defects and those of circuit breakers, which, while introduced to make electric systems safer, have nevertheless their limitations where heavy currents are transmitted. Guards for trolley wires are illustrated and described in *I.C. 7332.*

FIRE CONTROL

Electric short circuits, having caused many mine fires, the bigger companies of Pittsburgh have pooled their talent into committees to consider all the ways, direct and indirect in which electric mine fires can be caused, prevented and extinguished.

Experiments have shown that moisture makes it easier for a flame or hot particle to ignite black powder, unless the powder gets damp enough to disintegrate. Fine-grain powders ignite more readily than coarse-grain powders. Heat black powder to a certain temperature and its own internal reactions will make it steadily hotter until it explodes. Blows have less and less ability to explode black powder after the moisture increases above 2 per cent *(Report of Investigations 3782,* U. S. Bureau of Mines). The Bureau, at the end of February, declared that the limit charge for "permissible" explosives, sheathed or unsheathed, fired from a single hole had been raised from 1½ to 3 lbs., permitting the use of deeper undercuts which can not be utilized without larger charges of explosive than had been "permissible."

ROCK-FALLING IN MINES

Microseismic disturbances in rocks under strain become ten to 100-fold as frequent as rocks begin to fall, thus giving premonitory warning of approaching collapse. The larger the area affected, the longer will be the period of increasing microseismic activity prior to failure *(R.I. 3797).* By compressing small rock specimens in a laboratory, tremors are produced as in mines. Coarse-grained rocks will have an average of 1,000 such tremors, and fine greenstones less than 200. Number of tremors depends on applied pressure and the rate of its application *(R.I. 3803).*

Lignite dust containing 20 per cent of moisture can be ignited both by electric arcs and by flames of detonating dynamite, but it is exploded less easily than the dust of low-moisture high-volatile coals *(I.C. 7322).* Use of flaked calcium chloride or of refined granular sodium chloride for allaying coal dust on shuttle-car roads is advocated by the U. S. Bureau of Mines *(R.I. 3828).* Driving of mine shafts by huge rotary drills of diameters larger than the completed shaft is recommended in *I.C. 7336* as also the lining of such shafts with a steel casing backed by concrete. A method of determining dust concentrations by collection of dust on filter paper is described in *R.I. 3788.* As the paper is dry, bacterial deposits on such paper do not grow, and the dust does not dissolve. To count the dust, it is removed by ethyl alcohol or other liquids.

SURFACE WATER

Ethyl alcohol can be used to absorb surface water from coal and thus make a rapid determination of such water. It can be used again and again until its water content is excessive. The quantity of water dissolved can be determined by a hydrometer *(R.I. 3811).* Unless coal is very dry, oiling will increase the density of the charge in a coke oven and improve the coke, but in some cases it may cause the charge to expand, thus damaging the ovens *(R.I. 3807).* Plasticity indexes, as determined by the Davis and Gieseler plastometers, give as good an indication, as proximate coal analyses, of the physical properties of the cokes to be derived from the coals (Carnegie Institute, *Contribution 115*). For coke making, low-volatile anthracite fines are perhaps preferable to those of higher volatility. From 3 to 5 per cent of anthracite may be used. Choice of anthracite and how much shall be added to the coal to be coked to lessen checking is a separate problem for each plant *(R.I. 3808).*

PACKAGED FUEL

The anthracite region has for many years been producing fine sizes of coal for which there was either no market or an inadequate demand. Some has been briquetted, but the excessive quantity of binder made the product costly. During the war, these fine sizes always readily made available, attracted attention, and the Defense Plant Corp. furnished the capital for Blaw-Knox Co. to erect a plant for making a fuel containing 70 to 80 per cent of anthracite fines blended with 20 to 25 per cent of Pocahontas No. 3 bituminous coal, further crushed, dried, and treated before being compressed into 3-in. cubes with an asphaltic binder. Wrapped six in a package by automatic machines with 267 packages to the ton, they are known as "White Glove Packaged Fuel." The plant has a capacity of 500,000 tons a year. The Philadelphia and Reading Coal & Iron Co. has erected two briquet plants, one at its Locust Summit plant and the other at the St. Nicholas plant.

NON-FERROUS METALS

By Walter Renton Ingalls
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PRODUCTION AND PRICE FACTORS

During 1945, as in 1944, the use of the non-ferrous metals continued to be restricted in the main to military munitioning, but there was further release of some metals for ordinary consumption, except that lead and tin continued to be severely restricted. The cessation of fighting in Germany, early in May, was not allowed to lead to any great relaxation of effort, but after the surrender of Japan, in August, conversion to civilian consumption proceeded rapidly.

In reviewing the history of the non-ferrous base metals in 1945 it is best to refer to them jointly in a prefatory way, for economic conditions were common to most of them. Among these were shortages of labor, frequent strikes, embarrassments arising from pre-war labor legislation (especially in respect of an industry organized on the basis of 24 hours per day and 300 to 365 days per year), waning resources of ore and exigencies of importing, subsidizing of uneconomic operations, WPB and OPA controls, etc. These were among the difficulties experienced especially by the producers of copper, lead and zinc.

PRICES AND PREMIUMS

The price for copper in 1945 continued to be 12c. per lb., delivered in Connecticut; lead 6.5c. per lb., New York; common spelter 8.25c., East St. Louis; aluminum 15c.; magnesium 20.5c.; nickel 35c. and tin 52c., New York. The prices for copper, lead, and spelter were the ceilings established by OPA, but these prices being inadequate to invite maximum production, especially in view of increasing economic adversities, producers were stimulated by subsidies. Consequently the actual cost to the Government of all the copper produced in the United States in 1944 was 13.5c. per lb.; of lead 8.17c.; and of zinc 11.04c. Approximately one-fourth of our domestic copper production in 1944 had thus to be subsidized, one-half of our lead production, and about 60 per cent of our production of spelter. These conditions continued through the first semester of 1945, but, after the surrender of Japan, cancellation of foreign contracts for copper and of domestic subsidies occurred without much delay, but not so sharply in respect of other metals that continued in short supply, especially lead and zinc. It is now accepted that the lead and zinc mines of the United States have waned so extensively that they will be unable to supply domestic requirements; wherefore, this country will become regularly an importer of lead and zinc on a large scale. Our domestic copper mines are still capable of adequate supply, but the country will cease to be an exporter of copper.

ORE RESERVES

As reported by E. W. Pehrson of the U. S. Bureau of Mines, estimated lead and zinc reserves of the United States, recoverable under pre-war operating conditions, are now as follows: Lead, 5,000,000 tons of which only one-third classed as measured and indicated. These estimates are on the basis of 6c. for lead and 6c. for zinc. Under emergency conditions the lead reserve might be 6,600,000 tons and the zinc reserve 17,000,000. The pre-war consumption of lead and zinc in the United States was 500,000 to 600,000 tons per annum, respectively. In respect of both of these metals, metallurgical efficiency has been raised so high that no ores are now incapable of beneficiation. Not during the last 20 years have there been discoveries of new ore deposits. Attention must now be directed to the search for deep, concealed deposits. It is worth mention that, since the beginning of the war, the dezinking of old lead smelting slags has afforded the United States a new supply of zinc which in 1944 was upward of 50,000 tons.

TARIFF PROTECTION

Economic conditions in the United States led to grave concern with respect to tariff legislation under consideration during the early part of 1945. The tariff on pig lead, 2⅛c. per pound in the tariff act of 1930, was by presidential proclamation, effective Jan. 30, 1943, reduced to 1 1/16c. for the duration of the war, after which it was to be 1.7c. Similarly the tariff on spelter, 1¾c. by act of 1930, was reduced to ⅞c. per pound, during the war, going up to 1.4c. 30 days after the termination.

The President's V-J proclamation would have brought the post-war rates into effect Oct. 2, but no tariff proclamation was made. The enactment of the legislation in June, 1945, giving the President the right to make additional tariff reductions, up to 50 per cent more, alarmed domestic producers of lead and zinc. American producers fear that foreign costs of production are so much lower than our own that the very existence of their industries is in jeopardy, unless they have adequate protection. It was of record that, in order to obtain a production of 716,000 tons of spelter in the United States in 1944, an average price of 11c. per pound had been required, while producers in Australia and Canada had supplied their immense outputs to the British government at less than 4c. per pound, in depreciated currency.

A tariff of 4c. per pound was imposed on imports of copper by the revenue act of 1932. Although this has been construed as an excise tax, the Department of State holds that copper is not exempt from the authority granted by the reciprocal trade agreements act of June, 1945

ACCUMULATED STOCKS

Stocks of copper, lead, and zinc had accumulated to large proportions in 1944, besides which fired cartridge cases of brass were already coming back on a large scale and there was concern in respect of possible liquidation of surpluses. This was eased by Congressional enactment, Sept. 19, 1944, withholding stocks from liquidation for a period of 15 months and to such extent as the Army and Navy through the Munitions Board should pronounce needful for national security.

The Munitions Board report, dated Jan. 2, 1945, stated that in view of the "likelihood that in a future war we shall not have the time required to make the necessary provision for materials it is important that an early beginning be made toward accomplishing a sound stock-pile program." The Board withheld from publication "for reasons of military security" the quantities of materials in its recommendations for stockpiling, but they are believed to be large.

During October, 1945, identical bills were introduced in the Senate and House of Representatives to provide for the indefinite holding of stockpiles of metals and materials accumulated by government agencies during the war.

EUROPEAN PLANTS

By the end of September we had authentic, first-hand reports of the situation of metallurgical plants in Europe. On the whole they escaped with surprisingly little damage, suffering mainly from neglected upkeep. In the occupied countries—especially Belgium, Holland, and France—production during the war was small, owing to absence of supplies of ore and fuel, shortages of which and transportation difficulties being the chief obstacles against resumption for full-scale operation. Plants in Germany were more severely damaged, but not irreparably, and some of the more important of them were in partial operation during the third quarter of 1945. The copper mines and metallurgy at Eisleben (Mansfeld) and the zinc plant at Magdeburg (Giesche) are in the Russian area of occupation. The production of lead and zinc in Upper Silesia had been restored to a substantial scale by the middle of 1945.

ALUMINUM

At the end of 1943, listed aluminum ingot capacity in the United States was for an annual rate of 1,182,000 tons, and in the first half of 1944 there was an actual production of 460,000 tons. This manifestly afforded an oversupply, and during the second semester of 1944 there was an extensive closing of plants which reduced monthly production to about 50,000 tons. During the year 1945 it ranged from 44,000 to 53,000 tons per month. Plants continuing in operation were those owned by the Aluminum Co. of America (Alcoa); those owned by RFC and operated by Alcoa under lease; and those owned and operated by the Reynolds Metal Co. With the cessation of hostilities and cancellation of war orders for airplanes and other armaments, the capacity of the RFC plants was no longer required, Alcoa surrendering its leaseholds as of Nov. 1, 1945. The plants thus returned were at Jones Mills, Ark.; Los Angeles, Calif.; Massena, N. Y.; Spokane, Wash.; and Troutdale, Ore. Plants at Maspeth, N. Y., Burlington, N. J., and Riverbank, Calif., had been surrendered in 1944. At the time of this writing nothing had been decided in respect to the future of these surplus plants. Alcoa built and operated them for the benefit of the Government, without profit to itself.

Meanwhile, government opposition to Alcoa continued. The long drawn-out anti-monopoly case had been decided in favor of the company on every count in proceedings in 1938 in a Federal District Court in New York. The Government appealed to the Supreme Court, which resulted in a stalemate, there being too few of the justices, free from prior associations, to constitute a quorum. By agreement the appeal was then referred to a special court of three jurists appointed by the President of the United States. This court decided that Alcoa formerly had been a monopoly in the production of ingot aluminum in the United States but, with the advent of recent competition, has ceased to be so; and otherwise reaffirmed the decision of Judge Caffey in the Federal District Court. In September, 1945, the Department of Justice proposed legislation to Congress to bring about the dissolution of Alcoa.

Disposal of the DPC alumina and aluminum plants, built at a cost of $700,000,000, is a current problem. Alcoa is out of favor with the Department of Justice, which desires to increase competition with it. Alcoa expressed itself as not averse to fair competition but disliking subsidized competition. Alcoa offered to lease the alumina plant at Hurricane Creek, Ark., and to make the product available to competitors at 2c. per pound, or lower, according to quantity, the price in October, 1945, being 2.5c. Other concerns had previously expressed interest in some of the reduction plants, but no one had offered to purchase. Plants that are regarded as favorably situated are those at Jones Mills, Ark., Troutdale, Ore., and Massena, N. Y. The plant at Maspeth (Queens), greatest of all, has already been dismantled.

At the beginning of 1945 the Government stock of virgin ingot was 267,000 tons, besides which there was 15,500 tons of secondary ingot. Owing to a temporarily accelerated demand these stocks were reduced to 168,000 tons at the end of the first quarter, and at the end of September were 192,000.

COPPER

The world's production of copper in 1941-44 aggregated somewhat more than 3,000,000 tons per annum without much change from year to year. Plus or minus in the outputs of some countries were offset oppositely in others. This includes allowances for several countries for which statistics are wanting. It is known that the domestic production of Germany was no more than the pre-war rate of about 25,000 tons per annum, and that the Bor mines of Yugoslavia, which passed under German control, yielded no more than their maximum pre-war rate of 47,000 tons. It is doubtful if the Japanese were able to get much more than 100,000 tons from their own mines and from the mines in the Orient that became available to them. The mines in Finland, Norway, Sweden, and Turkey (Asia Minor) were unable to produce much more than to satisfy domestic needs.

When the refineries of Germany were seized they were found to be well stocked with roofing, statues, bells, etc. stripped from conquered countries. Even so it is clear that the Germans must have conducted their warfare with supplies of copper small in comparison with those enjoyed by the Allies. Of major importance was the development by the Russians of a great steam-shovel mine near Bertys Bay, Lake Balkhash in Kazakhstan, which began production in 1939, and which together with other new production in Kazakhstan may have raised the total production of Russia and Siberia above 250,000 tons per annum. Although Russia obtained copper and copper alloy from the United States under lend-lease, it is to be foreseen that Russia may cease to be an importer of copper.

In the United States supplies were received from Chile and Africa, which, added to domestic production, gave us about 1,800,000 tons of newly refined copper per annum. Domestic production attained a maximum of 1,114,000 tons in 1943 and thereafter waned through shortage of labor and other adverse economic conditions. Of our imported copper 80 per cent was produced at 11.75c. per pound and 20 per cent at prices above the OPA ceiling, resulting in an average price of 12.4c. per pound, thus reflecting that the cost of production in Chile, through higher terms for labor, taxes, and otherwise, had increased as it had in the United States.

Of the great consumption of copper in the United States, the major part of it was for ammunition, and nearly all of it was for military purposes, the domestic allowances for telephone, electric light and power, and railway service being severely curtailed, while for non-military motor vehicles and general building they were reduced to practically nothing at all.

Following the surrender of Germany in May, 1945, the manufacture of ammunition continued at a high rate, but after the surrender of Japan it was quickly ended. However, the civilian demand for copper developed in such volume that substantial releases from MRC (Metal Reserve Corporation) stock had to be made to satisfy it.

The total stock of copper held in storage by MRC as of Sept. 30, 1945, was 543,843 tons, including copper content of ore, some of which was stored in Canada and in Chile. Included is the MRC stock of refined copper in the United States, amounting to about 400,000 tons. Not included are stocks in Army arsenals, Navy yards, etc. The stock of refined copper in possession of the British Government in the middle of 1945 has not been officially declared but is intelligently surmised to have been about 400,000 long tons. Following V-E day some of the copper-starved countries, especially France, were quick to draw supplies from Great Britain.

LEAD

The history of lead in 1945 is similar to that of copper with the difference of a sharper decline in domestic production, although supported by stiffer subsidies. Domestic production being insufficient for our needs, it was necessary in the four-year period of 1941-44 to import 1,100,000 tons of refined lead, over and above what we derived from lead in foreign ore brought here for smelting and refining. These imports were derived chiefly from Australia, Canada, and Mexico. This led to an accumulation of about 275,000 tons of MRC reserve stock in the early part of 1943, which was reduced to 90,000 tons at the beginning of 1945, and to 86,000 at the end of October.

Allocation of lead supplies was controlled severely by WPB throughout the war and subsequently. Lead did not enter into ammunition so extensively as in former wars, lead bullets having been replaced largely by armor-piercing steel projectiles. On the other hand, the military requirements for lead for tempering gasoline and for storage batteries were immense. However, the dislocations in the uses for lead were relatively mild, military uses being largely the same as civilian, wherefore return to the latter did not produce much trouble. It is recognized that the lead mines of the United States are waning and that we are henceforth destined to be an importer of lead.

MAGNESIUM

Magnesium producers of the United States during three and one-half years beginning in January, 1942, shipped more than 25,000 tons of magnesium powder to domestic and lend-lease consumers. This was for tracer bullets, flares, signals, and other pyrotechnic implements of warfare. During the same period, magnesium foundries shipped almost 120,000 tons of incendiary bomb castings. This was close to aircraft as the largest user of magnesium during the war. In addition large shipments of bomb alloy ingot went to Great Britain for processing there.

At the end of 1943 capacity for the production of ingot magnesium in this country at the rate of 293,000 tons per annum had been realized. This proved clearly to have been overbuilding, for the maximum monthly production (January, 1944) was 21,000 tons and after the first quarter of 1944 the metal became obviously in excess supply and at the end of that year the monthly rate was about 4,200 tons. In the first half of 1945 production was 20,000 tons.

The military channels of consumption were naturally closed by peace. Otherwise, magnesium is but little used as such, being mainly used in alloy with aluminum, with or without an addition of zinc. Besides continued use in airplane construction, extensive uses will develop in other directions where saving of weight is desirable. At the second annual meeting of the Magnesium Association (comprising 53 companies), the president in his address was optimistic as to new uses. Among other things he suggested household appliances, office equipment, sporting goods and camping equipment. Commercially, weight will be saved in such applications as elevator cages, trucks, buses, railroad cars and perhaps some marine fittings. The efficiency of some machines with rapid motion may be materially increased. Among such machines are those used in the textile industry wherein improved methods have caused designers to turn more and more to the use of materials of light weight and increased strength, higher operating speed, and greater precision.

NICKEL

The nickel production of Canada, chiefly by the International Nickel Co., amounted to about 150,000 tons per annum in 1943 and 1944, and will probably be substantially less in 1945, a sharp shrinkage in demand having followed the end of the war and having led naturally to curtailment by the Canadian producers. Apart from the Canadian, the chief production prior to 1945 was in New Caledonia, at the rate of about 9,000 tons per annum, with which there was no interference by warfare in the Pacific. The mines and developments at Petsamo (Pechanga) in Finland, acquired by the U.S.S.R. by purchase from the International Nickel Co. late in 1944, have been in process of restoration and have not yet been brought into production. Apart from this source, the Russians have developed nickel mines in the northern part of Aktyubinsk Oblast (district) in eastern Kazakhstan. The Nicaro Nickel Co., subsidiary of the Freeport Sulphur Co., developing a deposit of nickeliferous iron ore in Mayari, Oriente Province, Cuba, entered into production early in 1945 at the rate of 1,300 tons of nickel oxide, equivalent to 1,000 tons of metal per month. The nickel oxide product of this company is, in that form, used in the manufacture of nickel steel in the United States. The elaborate and costly plant in Cuba was financed by the U. S. Government as a war measure.

The American Smelting and Refining Co. abandoned its interest in the deposit of nickel-cobalt ore near Sao de Tocantins in the state of Goyaz in Brazil, following its conclusion that, although this mine has a large deposit of ore, it would not pay under existing economic conditions.

TIN

Consumption of tin in the United States was reduced to about 60,000 long tons per annum compared with 101,000 tons in 1941. This reduction was accomplished by curtailment either by prohibition, *e.g.*, in some of the minor uses such as collapsible tubes, foil, galvanizing, etc., or by economizing in essential uses, *e.g.*, tinplate, with perhaps impairment of quality. Substantially the same thing was done in Great Britain and with approximately the same result except that the British did not venture into electroplating.

At the beginning of 1942 in the United States, there were 50,000 tons of pig tin in government stocks and 58,500 tons in private stocks. The Longhorn smeltery at Texas City, Tex., government financed, produced 15,700 tons in 1942, 20,700 tons in 1943, and 30,600 tons in 1944. This smeltery was alimented with ore imported from Bolivia and the Belgian Congo, but chiefly from Bolivia. This country also obtained 52,000 tons of pig tin by importation, which in 1942 comprised a substantial tonnage shipped from Malaya and the Netherlands East Indies prior to the Japanese occupation. Subsequently our imports of pig tin were from Belgian Congo plus a relatively small quantity transported by airplane from China. At the beginning of 1945 there were government stocks of 41,177 tons of pig tin plus 17,414 tons in private stocks, besides which we had 41,000 tons of tin, estimated as recoverable, in concentrates on hand for smelting.

In 1945 the picture did not change materially. In the first half of the year the Longhorn production was 20,000 tons, and at the end of the third quarter the expectation was that the year's production would be 41,000 tons. In the middle of 1945 we had 50,500 tons of pig tin in stock plus 36,500 in concentrates. The situation seemed therefore to be comfortable. However, the tin administration in WPB was unwilling to permit any relaxation in control.

Since the surrender of the Japanese and their evacuation from Malaya, Banka, and Billiton, reliable news as to situations there had not been received up to the end of November beyond the report that the smeltery at Penang was in working order but that the great plant at Singapore had been badly damaged. It was conjectured that the primary plant for tin production in Malaya, sluicing and dredging, had not been damaged. More damage appears to have been done in Banka and Billiton.

At the end of the war about 25,000 tons of pig tin existed in Great Britain, some of which was released to this country. A stock of uncertain tonnage was discovered in Malaya, mostly at Penang. Subsequently about 4,000 tons of pig tin and 16,000 tons of black tin (concentrates) were found in Siam. Small stocks were seized in Germany and in Japan.

The conditions of the war led to some important increases in production, especially in Nigeria, where output rose from about 10,000 tons in 1940 to about 17,000 in 1944, and in the Belgian Congo where it rose from about 10,000 to 18,400 tons. The ore deposits of the Belgian Congo, alluvial and lode, are believed to be large. Production in Bolivia which was 38,000 tons in 1940, was only about 39,000 in 1944 and will not turn out to be any larger in 1945. This production which is made under unhappy economic and physical conditions has had to be subsidized by the U. S. Government in order to aliment the Longhorn smeltery. Up to 1945 the price paid for this tin in ore was 60c. per lb.

ZINC

In this article reference has been made to the subsidizing of domestic production, the waning of our mines, and general economic conditions. Statistically it appears that the zinc mines of the United States afforded a production of 768,000 tons (their maximum) in 1942. In 1943 they produced 744,000 tons; in 1944 only 710,000; and in the first semester of 1945 only 321,000 tons with the outlook that the total for 1945 will be no more than 620,000 tons. These figures include what has been gained from the dezinking of lead smelting slags regarded as waste prior to 1940.

Besides our domestic production of zinc ore we have imported large quantities for beneficiation in our smelteries, which have an aggregate capacity for producing 1,097,000 tons of spelter per annum, and in 1943 actually produced 972,000 tons. Our imports of zinc ore have been derived chiefly from Argentina, Australia, Canada, Mexico, Newfoundland, and Peru.

In the triennium 1942-44 the imports of zinc ore into the United States were 368,000 tons in 1942; 537,000 in 1943; and 423,000 in 1944; a total of 1,328,000. Most of this ore was for domestic use, but a considerable part of it was imported for smelting on toll for the account of the British Government, and another part was for export under lend-lease. In these ways exports of spelter were 134,000 tons in 1942; 97,500 in 1943; 21,500 in 1944; a total of 253,000 tons. Besides such exportation, there was annually several thousand tons exported in the forms of zinc sheet, zinc dust, and zinc alloy.

Besides the requirement of zinc ore for the production of spelter and zinc dust there is in this country a large requirement for the production of zinc oxide, leaded-zinc and lithopone used largely for pigments, such requirement having been about 140,000 tons in 1944 with the outlook from the monthly statistics so far available that in 1945 it was about the same. To some extent the manufacturers of these products use the same ores as the producers of spelter, but to a larger extent they use ores adaptable to their own processes.

The domestic consumption of spelter was divided through the usual channels. Use for galvanizing was about stationary from 1940 to middle of 1945. Use for brass-making increased immensely in step with the use of copper for cartridge brass and bullet jackets. Use for die casting diminished sharply owing to discontinuance of manufacture of passenger automobiles. After the surrender of Japan the need for spelter for ammunition ceased, accumulation of stocks increased, and restrictions against civilian consumption were relaxed.

At the end of September, 1945 the total storage of RFC was 736,627 tons, including zinc in ore, whereof 165,460 tons were in ore stored abroad.

Zinc metallurgists, especially the distillers, were embarrassed by labor troubles all through 1945, and especially around the end of the third quarter when they were afflicted by strikes and exaggerated demands as in other industries. On top of wage, rates already high in some plants, a further raise of 20 per cent was demanded, plus double time for Sunday work and sundry perquisites. At the end of November a new strike developed.

PETROLEUM

By Robert E. Allen
Director of Information, American Petroleum Institute

END OF THE OIL WAR

From the relatively safe time-distance of four months since the war ended, it is appropriate to give expression to a few of the questions that now perplex mankind. To the first of these questions, which in various ways asks "Will there be another war?" only faith and determination will yield the ultimate answer. To the question "If war comes again, will it be another oil war?" an even less satisfactory answer is possible because of the host of unknown contingencies, not the least of which is atomic energy, that vast hall of terrible mystery.

Petroleum made world wars possible, for without it there would have been no mechanized armies, no self-sustaining task forces on the sea, and not a plane in the sky. Wars would be localized and leisurely as they were before petroleum came of age. Having made global warfare possible, petroleum contributed as much as any of our resources to the winning of the conflict just ended and which history may regard as the Second Air War, rather than the Second World War.

The will and ingenuity and fighting heart of the American people achieved a victory so decisive that the vanquished are under no illusions of a negotiated peace. Several basic industries contributed nobly to that victory. Steel, agriculture, lumber, coal, copper, aluminum, zinc, and all the rest mortgaged their present and impoverished their future, as did petroleum. These other industries provided the materials for the ships, planes, tanks, and all the means of war and it was petroleum that gave them motion and military value. It was petroleum, too, that comprised two-thirds of all the tonnage of all kinds shipped overseas.

Evidence aplenty has been found to prove that lack of mobile fuel rendered the Reichswehr impotent to stop our swift advance after the Rhine had been crossed. Lack of fuel oil in sufficient quantities kept the Japanese fleet so immobile that its units were easy prey to our far-ranging air fleets, each unit of which consumed more 100 octane fuel on each mission than the average automobile consumes during its entire life. It takes enough oil to last an oil-burning town of 5,000 people an entire year to fuel one of our big battleships or carriers for just one sweep.

Will such staggering quantities of petroleum, in so many forms, ever again be needed in war? Perhaps not, even though war itself may come. The three great inventions of the war—radar, rockets and nuclear fission—may be so perfected and combined as to make the next war brief and ghastly beyond all present comprehension. It would be naive for any survey of petroleum during the epochal year of 1945 to ignore the continuing relationship of petroleum to other sources of energy, both apparent and presumptive.

OIL RECONVERSION

Owing principally to the unique government-industry team that had directed the wartime production and distribution of petroleum products, the end of the war brought practically no reconversion problems of importance to the oil industry. One large refinery converted from the production of 100 octane aviation gasoline to the full scale production of high grade automotive fuel within 24 hours.

The government-industry partnership went into action on Dec. 8, 1941, the day after Pearl Harbor. At that time the Petroleum Industry War Council was organized with William

R. Boyd, Jr. as chairman. The purpose of the PIWC was to implement in industry the requirements for petroleum products for all military and civilian agencies, as determined by the Petroleum Administration for War, of which Secretary of the Interior Harold L. Ickes was Administrator and Ralph K. Davies was Deputy. PAW was the government member of the PAW-PIWC partnership that won such high praise from the leaders of our armed forces for exceptional service in always delivering the required petroleum products in the amount needed, whenever and wherever needed.

In conformity with oft-repeated pledges, Administrator Ickes began, immediately after VJ-Day, to relieve the petroleum industry of all the regulations and directives that had been necessary to accomplish many wartime objectives. The dissolution of PAW was so rapid that by the end of 1945 hardly a skeleton force remained. After four years of splendid war service, the PIWC and its affiliated organizations were formally dissolved on Dec. 12, 1945.

Soon after VJ-Day, PAW certified to OPA (civilian rationing agency) that petroleum supplies were such as to warrant the abandonment of rationing of gasoline and fuel oils. Rationing was suspended on Aug. 16, 1945, and for some weeks thereafter the highways of the country again were filled with millions giving vent to their pleasure at being able to come and go freely once more. Only the coming of winter and the accelerated failure of worn-out cars finally slowed down the national joyride.

As the year ended, better than prewar gasoline was available in greater quantities than ever before, and except for occasional dislocations because of strikes, unbalanced price control, and readjustment pains, fuel oil was again in good supply. For some reason price control was still maintained upon petroleum products despite the fact that petroleum was available in quantities exceeding the demand. The petroleum industry as a whole had completed the transition from war to peace as the year ended.

THE FUTURE OF PETROLEUM SUPPLY

The future of petroleum is closely linked with the three factors of supply, location, and competition. The continuing supply depends upon the discovery and development of new sources at a rate not less than that at which the older supplies are being produced and consumed. This is an elementary requirement but there are many who do not sense its importance. As a corollary to this basic essential we should at all times have a reserve productive capacity that will enable us to draw on our oil fields at greater than normal rates during an emergency such as war. It was the reserve productivity which had been developed by good practice and conservation that enabled this country to meet all war demands for oil without too severely injuring our civilian economy. Without an emergency productive capacity of about 30 per cent, gasoline and fuel oil would have been completely unobtainable by the average civilian.

During its 85-year petroleum history, the United States has produced about 32,000,000,000 barrels of oil to the end of 1945. There are at least 21,000,000,000 barrels additional already discovered and available over the 30- to 50-year period that would be required to exhaust our known oil fields by efficient methods of recovery. The magnitude of our still undiscovered petroleum reserves is, of course, an unknown quantity but many of the most competent geological authorities are confident that petroleum reserves at least equal to the 50,000,000,000 barrels in the past still await discovery in America. This takes no account of the tremendous reserves of petroleum that in due course may be obtained from the almost boundless deposits of coal, oil shale, and tar sands in the United States and Canada.

This subject of petroleum reserves is of vital and continuing interest in the public mind, which frequently

TABLE I

WORLD PRODUCTION OF CRUDE OIL

Year	United States		Rest of World		Total World
	Thousands of Barrels	Per Cent	Thousands of Barrels	Per Cent	Thousands of Barrels
1935	996,596	60	657,892	40	1,654,488
1936	1,099,687	61	691,853	39	1,791,540
1937	1,279,160	63	760,071	37	2,039,231
1938	1,214,355	61	773,686	39	1,988,041
1939	1,264,962	61	821,198	39	2,086,160
1940	1,353,214	63	790,836[1]	37	2,144,050
1941	1,402,228	63	819,002[1]	37	2,221,230
1942	1,386,645	67	694,784[1]	33	2,081,429
1943	1,505,613	67	727,936[1]	33	2,233,549
1944	1,677,753[2]	64	939,321[1]	36	2,617,074
1945	1,712,000[2]	61	1,080,000[1]	39	2,792,000

[1] Approximate production.
[2] Preliminary, subject to revision.

becomes confused by trying to reconcile apparently conflicting statements from responsible authorities. Actually this apparent conflict is nothing more than the conflict between optimistic and pessimistic views of the same set of facts.

A prospective shortage of an essential commodity has far more news value than a story of ample supply. The average civilian may feel alarmed or complacent about his future oil supply, depending on whose statement he reads. He can, however, rely on the American oil industry to keep him and his grandchildren supplied with oil to the degree that they are willing to pay for it and to the degree that government, state and Federal, nurtures the initiative and incentive that have made the United States petroleum industry the ever dependable source of supply that it has ever proved to be, in war as in peace.

OIL SUPPLY LOCATION

The location of an oil supply is sometimes more important than the supply itself. In 1942, when German submarines severed the tanker lifeline between the oil-hungry millions of our Atlantic Seaboard and the oil fields of Texas and Venezuela, location became all important. In this case it was the location of the oil fields and refineries of the Middle West and Southwest with respect to our railway system that saved the day. Until the completion of the unsinkable "Big Inch" pipe line from Texas to New York and the completion of several other pipe line projects, the railroads and their solid trains of tank cars were all that stood between the people of the eastern states and a dire oil famine that would have closed factories, paralyzed transportation, and caused sickness and death in countless cold homes and offices. During the peak of this astounding rail movement of oil in July 1943, receipts of tank car oil in the East averaged more than 980,000 barrels daily or more than 65 per cent of the oil received by every means.

Thus a supply of oil at one place and an urgent need for it at another is likely to result in trouble unless the transportation between the two places is at all times absolutely dependable. This condition immediately establishes two requirements for future oil supply: (1) that it be so located in the Western Hemisphere that alternative means of transporting it from source to market may be developed and maintained; (2) that if located elsewhere than in the Western Hemisphere, definite provision must be made for the maintenance and protection of tanker lines during emer-

TABLE II

UNITED STATES PETROLEUM PRODUCTION

	Crude Oil Thousands of Barrels	Natural Gasoline, etc. Thousands of Barrels[1]	Total Petroleum Thousands of Barrels	Natural Gas Millions of Cu. Ft.
1935	996,596	39,333	1,035,929	2,498,005
1936	1,099,687	42,770	1,142,457	2,644,835
1937	1,279,160	49,177	1,328,337	3,032,410
1938	1,214,355	51,347	1,265,702	3,048,200
1939	1,264,962	51,650	1,316,612	3,333,500
1940	1,353,214	55,700	1,408,914	3,694,100
1941	1,402,228	80,855	1,483,083	4,103,500
1942	1,386,645	83,322	1,469,967	4,453,900
1943	1,505,613	87,716	1,593,329	4,942,560
1944	1,677,753[2]	100,046	1,777,799	4,350,000
1945	1,712,000[2]	111,250[2]	1,823,250	4,820,000
11 year Total	14,892,213	753,166	15,645,379	40,921,010
Total Prior	16,598,444	497,730	17,096,174	36,958,455
1859–1945 Total	31,490,657	1,250,896	32,741,553	77,879,465

[1] Natural gasoline, etc., includes related products such as liquefied petroleum gases, naphthas. and other liquid hydrocarbons recovered from natural gas.
[2] Preliminary, subject to revision.

gency, unless it should be our policy to draw heavily upon extra-territorial supplies in time of peace in order to conserve protected supply until time of need.

These are decisions which the policy makers of this country must face, and soon. The maintenance of the supply of such a vital necessity as petroleum can not be left to chance, because oil is one thing that time, unassisted, will not bring. Already, steps have been taken in the direction of a stable petroleum policy by the negotiation of an Anglo-American oil agreement which, when effective, will serve to coordinate and stabilize the worldwide oil production and distri-

TABLE III

PETROLEUM IN TWO WARS

(1918—1945)

	1918	1945[1]	Per Cent Increase
Oil Producing States	18	26	33
Deepest Well	7,579 ft.	16,655 ft.	120.0
Producing Oil Wells	195,000	423,948	117.4
Producing Gas Wells	40,300	62,000	53.8
Crude Oil Production (barrels)	356,000,000	1,712,000,000	380.9
Natural Gasoline Production (barrels)	6,725,000	111,000,000	1550.6
Total Liquid Petroleum (barrels)	362,725,000	1,823,000,000	402.6
Natural Gas Production (mcf.) (from oil and gas wells)	945,000,000	4,820,000,000	410.1
Known Crude Oil Reserves (barrels)	6,500,000,000	21,078,024,000	224.3
Oil Reserve/Production Ratio	18.25	12.3	
Known Natural Gas Reserves (mcf.) (Natural Gas Fields only)	15,000,000,000	140,859,000,000	839.1
Gas Reserve/Production Ratio	15.90	29.2	
Motor Fuel Produced (barrels)	85,000,000	801,800,000	843.0

[1] 1945 data preliminary—subject to revision.

TABLE IV

SUPPLY AND DEMAND OF ALL OILS

(Thousands of barrels)

	Production[1]	Imports	Exports	Closing Stocks	Domestic Demand
1935	1,037,800	52,635	128,987	541,914	983,686
1936	1,144,959	57,104	131,994	519,229	1,092,754
1937	1,331,127	57,157	172,834	564,997	1,169,682
1938	1,267,466	54,308	193,728	555,920	1,137,123
				567,703[2]	
1939	1,319,110	59,060	188,959	525,838	1,231,076
1940	1,412,081	83,751	130,466	564,584	1,326,620
				563,277[2]	
1941	1,486,518	97,142	108,830	552,328	1,485,779
				556,425[2]	
1942	1,472,364	35,966	116,907	497,940	1,449,908
1943	1,595,729	63,412	149,957	485,698	1,521,426
				483,307[2]	
1944[3]	1,780,199	92,256	208,911	477,089	1,669,762
1945[3]	1,826,000	115,000	185,000	462,500	1,770,589

[1] Includes production of all raw materials, that is, crude petroleum, natural gasoline, liquefied petroleum gases, and benzol.

[2] New basis for comparison with succeeding year.

[3] Preliminary, subject to revision.

bution practices of British and American nationals, and those of such other nations as may subsequently elect to subscribe to the treaty as finally ratified. Hearings on the ratification of the Anglo-American petroleum treaty will be held by the United States Senate early in 1946 and decisions made by the Senate at that time will go far toward defining the pattern of our oil future.

COMPETITION

In the American petroleum industry, competition for public favor and for outlet has been predominantly responsible for the phenomenal progress that has been made in all branches of the industry. This competition which has resulted in such low prices for petroleum products of all kinds has also been responsible for the nondevelopment of more expensive substitutes for petroleum. Synthetic oils, when needed, may be derived in large quantities from coal or oil shale if the public is willing to pay the higher price that more expensive methods require or if research and progress are able to reduce the costs of extraction.

TABLE V

WELLS COMPLETED IN THE UNITED STATES

Year	Oil	Gas	Dry	Injection	Total
1935	14,663	1,401	4,911	445	21,420
1936	17,800	2,070	5,297	723	25,890
1937	22,386	2,676	6,560	1,453	33,075
1938	18,598	2,066	6,141	688	27,493
1939	17,625	2,198	6,474	1,420	27,717
1940	19,125	2,352	6,617	1,947	30,041
1941	19,552	3,007	7,128	2,366	32,053
1942	10,492	2,068	5,504	1,760	19,824
1943	9,717	1,782	6,385	1,547	19,431
1944	13,028	3,067	7,009	2,156	25,260
1945[1]	14,283	2,825	7,463	2,212	26,783

[1] Preliminary, subject to revision.

TABLE VI

CRUDE OIL IN STORAGE AT YEAR END[1]

(In barrels of 42 gallons)

Year	
1935	314,855,000
1936	288,579,000
1937	306,826,000
	305,833,000[2]
1938	274,958,000
	274,165,000[2]
1939	239,978,000
1940	264,709,000
1941	247,499,000
1942	234,889,000
1943	243,506,000
	242,132,000[2]
1944	220,862,000
1945[3]	219,000,000

[1] Excludes heavy grades in California.
[2] New basis to compare with succeeding year.
[3] Preliminary, subject to revision.

TABLE VII

CRUDE OIL PRICES

(Per barrel of 36 deg. A.P.I. gravity Oklahoma-Kansas oil)

Year	High	Low
1934	$1.00	$1.00
1935	1.00	1.00
1936	1.10	1.00
1937	1.22	1.10
1938	1.22	1.02
1939	1.02	1.02
1940	1.02	1.02
1941	1.17	1.02
1942	1.17	1.17
1943	1.17	1.17
1944	1.17	1.17
1945	1.17[1]	1.17[1]

[1] Exclusive of differential and variable subsidy payments effective in 1945.

TABLE VIII

CAPACITY OF U. S. REFINERIES

(Operating, shut-down, and building, as of Jan. 1)

Year	Capacity[1]
1935	4,072,400
1936	4,163,946
1937	4,376,081
1938	4,373,701
1939	4,650,805
1940	4,721,213
1941	4,860,194
1942	4,999,000
1943	5,035,000
1944	5,150,000[2]
1945	5,330,000[2]

[1] In barrels of crude oil per day.
[2] Preliminary, subject to revision.

TABLE IX

REFINERY RUNS OF CRUDE OIL

(In barrels of 42 gallons)

Year	
1935	965,790,000
1936	1,068,570,000
1937	1,183,440,000
1938	1,165,015,000
1939	1,237,840,000
1940	1,294,162,000
1941	1,409,192,000
1942	1,334,103,000
1943	1,429,738,000
1944	1,665,684,000
1945[1]	1,720,500,000

[1] Preliminary, subject to revision.

However, it is well to consider the magnitude of some of these alternative operations. If each ton of coal or oil shale yielded an average of one barrel of oil it would require about 5,000,000 tons of coal or shale a day to supply our oil. This amounts to about 1,800,000,000 tons a year or approximately three times the maximum yearly production to date. In other words, coal production might have to be quadrupled and an additional mining investment of something like $25,000,000,000 would be needed.

When it comes to using fuels derived from wood or farm products the prospects of immediate substitutes for petroleum are just as discouraging. This is because 5,000,000 barrels of petroleum a day is much more than anyone realizes. A mass of something like 250,000,000 tons a year is involved. This may not seem large

TABLE X

MOTOR FUEL PRODUCED IN UNITED STATES

(In barrels of 42 gallons)

Year	
1935	468,021,000
1936	516,266,000
1937	571,727,000
1938	569,162,000
1939	611,043,000
1940	616,695,000
1941	701,294,000
1942	608,900,000
1943	608,180,000
1944[1]	743,500,000
1945[1]	801,800,000

[1] Preliminary, subject to revision.

TABLE XI

GAS OIL AND FUEL OIL PRODUCED IN U. S. REFINERIES

(In barrels of 42 gallons)

Year	Gas Oil and Distillates	Residual Fuel Oil	Total Fuel Oil
1935	100,235,000	259,826,000	360,061,000
1936	125,906,000	287,968,000	413,874,000
1937	146,706,000	312,064,000	458,770,000
1938	151,774,000	294,890,000	446,664,000
1939	161,746,000	305,944,000	467,690,000
1940	183,304,000	316,221,000	499,525,000
1941	189,177,000	342,367,000	531,544,000
1942	196,714,000	358,901,000	555,615,000
1943	211,516,000	417,306,000	628,822,000
1944	239,152,000	461,455,000	700,607,000
1945[1]	249,800,000	468,600,000	718,400,000

[1] Preliminary, subject to revision.

but it happens to be somewhat more than all the foodstuffs produced yearly by United States farms. However, the farm products were worth four times as much as the oil produced, a fact worth remembering when edible farm crops are proposed as substitutes for very cheap fuel. Of course, corn and wheat have been used for fuel in the past and probably will be so used again but their use as large scale substitutes for oil or coal seems very remote.

TABLE XII

INDEX OF WHOLESALE PRICES

(1926—100)

(U. S. Bureau of Labor Statistics)

Year	Crude Petroleum and Petroleum Products	All Commodities
1936	57.3	80.8
1937	60.5	86.3
1938	55.9	78.6
1939	52.2	77.1
1940	50.0	78.6
1941	57.0	87.3
1942	59.8	98.8
1943	62.5	103.1
1944	63.9	104.0
1945[1]	63.5	105.8

[1] Preliminary, subject to revision.

OIL AND ATOMIC ENERGY

On the subject of competition from nuclear energy, the difficulties and costs confronting the commercial utilization of atomic energy are such as to indicate that petroleum as a source of mobile power and domestic heat need not worry about competition from atomic energy for many years to come. In fact, several of the leading nuclear physicists have said this very thing, yet when we observe the headlong drive of modern science toward the frontiers of the universe, we may well wonder if atomic energy of some kind, whether resulting from fission or from fusion, may not soon be gradually adopted, first to the generation of electricity, then to marine power, then to central heating—provided, of course, that the diversion of all this energy to destruction and devastation does not bring another Dark Age to the world.

So, petroleum faces competition as a source of heat and motion. It faces depletion also, and the question in the public mind is whether new sources of energy will be available before petroleum becomes so expensive and scarce as to discourage its use. That is something that this generation need not worry about, unless war again lays its frightful hand upon our lives and our resources.

Petroleum production of the United

TABLE XIII

ESTIMATED ANNUAL COST OF MOTOR FUEL AND TAXES PER CONSUMER

(Based on average number of motor vehicles in use each year)

Year	Annual Consumption per Automobile (gallons)	Average Motor Fuel Cost	Average Motor Fuel Tax	Total Cost to Consumer
1927	493	$90.27	$13.85	$104.12
1929	551	98.74	19.29	118.03
1931	583	75.79	23.32	99.11
1933	560	69.50	30.30	99.80
1935	601	81.44	31.79	113.23
1937	634	92.50	34.24	126.74
1939	643	85.58	34.98	120.56
1940	653	83.26	36.96	120.22
1941	642	85.39	38.07	123.46
1942	537	77.65	32.06	109.71
1943	403	58.68	24.06	82.74
1944	412	60.23	24.60	84.83
1945[1]	455	65.88	27.39	93.27

[1] Preliminary, subject to revision.

States and Venezuela in 1945 soared to new highs, and estimated world production reached a figure not likely to be materially changed by post-war revision of the production estimates of oil producing countries which were occupied or dominated by the enemy. U. S. production alone amounted to 61.3 per cent of the world total, although our percentage of the known petroleum reserves of the world is only about 34 per cent.

TABLE XIV

MOTOR FUEL PRICES, TAXES, AND COSTS

Year	Average Retail Price	State and Federal Taxes	Average Total Cost Per Gallon to Consumer
1920	$ .2974	$ .0009	$ .2983
1925	.2009	.0211	.2220
1929	.1792	.0350	.2142
1933	.1241	.0541	.1782
1936	.1410	.0536	.1945
1937	.1458	.0540	.1998
1938	.1407	.0544	.1951
1939	.1331	.0544	.1875
1940	.1275	.0566	.1841
1941	.1330	.0593	.1923
1942	.1446	.0597	.2043
1943	.1456	.0597	.2053
1944	.1462	.0597	.2059
1945	.1448	.0602	.2050

TABLE XV

PETROLEUM TAXES

Year	Total Taxes
1935	$1,121,936,698
1936	1,183,147,498
1937	1,315,487,798
1938	1,286,114,473
1939	1,354,166,333
1940	1,523,693,000
1941	1,807,146,000
1942	1,786,338,797
1943	1,686,133,000
1944	1,810,536,000
1945[1]	2,053,362,000

[1] Preliminary, subject to revision.

Actual refinery runs of crude oil averaged 4,718,000 barrels daily during the entire year of 1945. The tremendous expansion and improvement of refinery facilities since 1941 has been required by the urgent and unprecedented demand for petroleum war products of which 100 octane gasoline is only one of many. This complete modernization of nearly all of the larger refineries of the U. S. represented an investment of nearly $900,000,000—more than 75 per cent of which was borne by the refining companies without governmental assistance.

PERIODICAL PUBLICATIONS

American Gas Journal
53 Park Place, New York City.

American Mineralogist
450 Ahnaip St., Menasha, Wis.

Chemical and Metallurgical Engineering
330 West 42nd Street, New York City.

Coal Age
330 West 42nd Street, New York City.

Engineering and Mining Journal
330 West 42nd Street, New York City.

Fueloil Journal
232 Madison Ave., New York City.

Iron Age
100 East 42nd Street, New York City.

Metal Finishing
11 W. 42nd St., New York City.

Metal Progress
7301 Euclid Ave., Cleveland, O.

Metals and Alloys
330 West 42nd Street, New York City.

Mining and Metallurgy
29 West 39th Street, New York City.

National Petroleum News
1213 West Third Street, Cleveland, O.

Oil and Gas Journal
211 South Cheyenne Street, Tulsa, Okla.

Oil Weekly
3301 Buffalo Drive, Houston, Tex.

Petroleum Engineer
701 Allen Building, Dallas, Tex.

Petroleum World
412 West Sixth St., Los Angeles, Calif.

Steel
Penton Publishing Co., Cleveland, O.

Steel Facts
350 Fifth Ave., New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN ASSN. OF PETROLEUM GEOLOGISTS, Box 979, Tulsa, Okla.

AMERICAN GAS ASSN., 420 Lexington Ave., New York City.

AMERICAN INSTITUTE OF MINING & METALLURGICAL ENGINEERS, 29 W. 39th St., New York City.

AMERICAN IRON AND STEEL INSTITUTE, 350 Fifth Ave., New York City.

AMERICAN MINING CONGRESS, 841 Munsey Bldg., Washington, D. C.

AMERICAN PETROLEUM INDUSTRIES COMMITTEE, 50 W. 50th St., New York City.

AMERICAN PETROLEUM INSTITUTE, 50 West 50th St., New York City.

AMERICAN ZINC INSTITUTE, 60 E. 42nd St., New York City.

DIVISION XIII

MANUFACTURES AND TRANSPORTATION

CONDITIONS IN MANUFACTURING

By L. Seth Schnitman
Transportation and Public Utilities Division,
Office of Price Administration

GENERAL

Hostilities over, 1945 might well have been the year in which both industrial management and labor finally learned that, in peace as in war, all-out goals are attainable, but only when there is an enlightened and determined collective will to serve the national interest. Instead, the year that easily could have established a pattern for enduring prosperity in peacetime produced a success story of a disconcerting kind—of industrial conflict, of bitterness and deadlock, unexampled in our entire history.

Far from providing the orderly transition from war to peace that had been widely heralded, 1945 marked the atavistic reversion to the "dog-eat-dog" attitudes and caprices that had characterized earlier periods in our history. Victory achieved in our battle for very existence, we were now at war with ourselves.

Again, we were seeing the branch and not the tree; we were confounding the shadow of high wage rates with the substance of high purchasing power; we were counting profits before they were earned and were beginning to look with disdain at the only means by which they could be derived. In short, we were generally viewing the economic horizon from the wrong end of the telescope. Small wonder that the index of industrial production (manufacturing and mining combined) as computed by the Board of Governors of the Federal Reserve System reflected so faithfully what happened to American industry in 1945; that, at the year-end, actual industrial production was probably not more than 65 per cent of our war-expanded capacity.

INDEX OF INDUSTRIAL PRODUCTION

For 1945, the combined output of our mines and factories, by volume, was some 13 per cent lower than in 1944 and virtually 15 per cent smaller than in 1943, the all-time peak year in the annals of American industry. This decline in production, however, was less the result of the sequential surrenders of Germany and Japan alone than is generally supposed; it was as much or more the acceleration or culmination of a pattern that became visible months before. The bald fact is, not a single month of 1945 was able to show a production volume as high as that recorded for the corresponding month of 1944. To get an even clearer picture of what happened to the index of industrial production, these additional bench-marks may be cited: though the average for the first half of 1945 recorded a loss of but 3 per cent from the corresponding period of 1944, the average for the final half of 1945 was 23 per cent lower than for the last half of 1944. Moreover, the December, 1945 index was virtually 25 per cent lower than that for December 1944.

Despite this cut-back in production, the index for 1945 as a whole was about 104 per cent higher than the average for the five-year period, 1935 through 1939; for December, 1945, it was still some 75 per cent above the base period average, despite the most disturbing labor-management outlook in a generation.

For manufacturing alone, apart from mining, the 1945 production record was a bit worse than that shown for the combined index, the losses from 1944 and 1943 being about 14 per cent and 16 per cent, respectively. Significant further facts follow: for the first half of 1945, manufacturing output was 4 per cent smaller than in the like period of the preceding year; in the final half-year 25 per cent lower than in the corresponding period of 1944; and for December alone, some 28 per cent smaller than during December 1944. Such, with all of its repercussions, were the costs of the transition to peace, though we had all but been lulled into the hope, if not belief, that "reconversion" would be economically painless; such were the rewards for sorrow, sweat, and sacrifice, though we had a right to expect that the unmeasurable remorse and travail which we suffered would provide an open sesame to full production, and its hand-maidens, full employment and full distribution.

DURABLE MANUFACTURES

It was, however, in the so-called durable goods industries, as distinguished from other manufactured items, that the most distressing aspects of this transition period appeared. The 1945 volume of durable goods production, including such items as iron and steel, machinery, automobiles, non-ferrous metals, lumber and its products, and other building materials, was 22 per cent smaller than in 1944 and almost 24 per cent lower than in 1943.

The decline of 6 per cent from 1944 during the first half of 1945 contrasts with a loss in the final six months of about 37 per cent; for December 1945 alone the loss from a year earlier was at least 40 per cent. Pity, this, because it was to the durable goods industries that all eyes were glued for a clue to the economic horizons for 1946 and beyond; because too, it is these industries that alone could generate the necessary activity to satisfy the promises of a better economic order. To be sure, with all the cutbacks in durable goods production which followed on the heels of victory on the battlefronts, the 1945 volume was still 177 per cent higher than in the base period years of 1935 to 1939. If anything, such a record only tends to focus attention on the problems which must be solved, if we are for long to maintain even so high a level of production.

NON-DURABLE MANUFACTURES

The index of non-durable manufactures covering 1945 output showed a shrinkage of but 2½ per cent from 1944 and 5 per cent from 1943. This small decline was in striking contrast with what happened to durable goods manufacturing output and yet it was understandable in the face of the unexampled demand for such things as textiles and their manufactures, leather and its products, manufactured foods, and other manufactured items for ready consumption, production of which for civilian uses had been restricted during the war. If "reconversion" in the non-durable goods industries was all but completed without incident or fanfare it only served to accentuate the disappointments that visited the durable goods industries during the difficult months of transition to peace.

RELATIONSHIPS BETWEEN DURABLE AND NON-DURABLE MANUFACTURES

In a sound economy, there must be relative balance between the manufacture of durables and the output of non-durable goods, for in the last analysis durable goods manufactures, through the channels of trade, must exchange for non-durable items. The 1945 ratio between the indexes of these two major categories of manufacturing was 1.66, or .66 above unity, which may be said to represent true balance. (A ratio below 1.00 would be subnormal, while a ratio above 1.00 may be called abnormal). Though the table below discloses that the 1945 ratio was measurably lower than the ratio for 1944, it seems to say that further downward readjustment in production is ahead, that is, if the record of previous peacetime years has any significance. The high ratios for 1919 and 1920, it may be noted, were followed in 1921 by a downward reversal in production, as the ratios for 1928 and 1929 foreshadowed a decline in production for 1930. This is another way of saying that for 1946 as a whole, durable goods production, more than with non-durable goods, is likely to show a fairly substantial decline from 1945, perhaps as much as 15 per cent. Even so, total manufacturing output is likely to be at least 75 per cent higher than the average during the five years, 1935-1939.

PRODUCTION INDEXES FOR DURABLE AND NON-DURABLE MANUFACTURES*

(1935–1939 Average = 100)

Year	Durable	Non-durable	Ratio: Durable / Non-durable
1919	84	62	1.35
1920	93	60	1.55
1921	53	57	.93
1928	117	85	1.38
1929	132	93	1.42
1930	98	84	1.17
1931	67	79	.85
1932	41	70	.59
1933	54	79	.68
1934	65	81	.80
1935	83	90	.92
1936	108	100	1.08
1937	122	106	1.15
1938	78	95	.82
1939	109	109	1.00
1940	139	115	1.21
1941	201	142	1.41
1942	279	158	1.77
1943	360	176	2.05
1944	353	171	2.06
1945	277	167	1.66

* Basic data, from Board of Governors of the Federal Reserve System. Ratios for specified years computed.

FOOD PRODUCTS

The index of production of manufactured foodstuffs for 1945, at about 152 per cent of the average for the base period (1935-1939), showed no change from the high record of the previous year and was virtually 5 per cent higher than in 1943, thanks to the unexampled level of the national income and an unsated export demand. Not all manufactured foods, however, shared fully in this sustained high output level as, for example, in the case of manufactured dairy products for which, combined, the 1945 index was about 2 per cent lower than in 1944. Butter production declined by about 7 per cent; cheese output suffered a loss of almost a like amount, and canned and dried milk declined by about 5 per cent. Wheat flour production, on the other hand, showed an increase of better than 10 per cent.

Meat packing in 1945 showed a loss of about 20 per cent from the previous year, almost entirely because of the inability of a substantial gain in the output of beef to offset a 35 per cent loss in the output of pork and pork products. Processed fruits and vegetables showed a new high level of output in 1945. At about 142, that index was not only some 42 per cent higher than the average of the five-year period (1935-1939), but also exceeded the 1944 level by about 6 per cent.

As the year wore on, scarcities in foods began to disappear except with respect to sugar and most edible fats and oils, witness the general removal first of "blue-point" and then of "red-point" rationing. Since expenditures for food have tended over the years to fluctuate with the national income, it is of more than passing moment to note, too, that retail sales reported by grocery and other food stores approximated $18,000,000,000 of which about $14,000,000,000 represented the sales at the manufacturing levels.

CONFECTIONERY, LIQUOR, TOBACCO

The production of candy and confections, entirely because of the acute sugar shortage, was about 5 per cent lower in 1945 than in 1944. Alcoholic beverages, on the other hand, showed a production gain of better than 20 per cent, most especially because of resumption of the output of whiskey.

Once again the production record of the tobacco products manufacturing industry chalked up another new high; this time the gain over the previous year was about 15 per cent. The output of cigars alone in 1945 was not only about 15 per cent higher than in 1944 but for the first time in recent years exceeded the volume of the base period (1935-1939). Cigarette production, too, showed a substantial gain in output in 1945 over the total for 1944.

TEXTILES, SHOES, APPAREL

The 1945 production of textiles and their products, in the aggregate, showed virtually no change from the level of the previous year. Cotton consumption dropped by about 4 per cent while deliveries of rayon to consuming mills, in recording an advance of better than 10 per cent over the 1944 total, made a new all-time record. The contrast between cotton and rayon is further accentuated by a backward look at the base period (1935-1939). For cotton, the 1945 consumption total was 38 per cent higher and for rayon 119 per cent greater than in that five-year period.

Wool textiles, too, were generally produced in lower volume in 1945 than in 1944, largely because of losses in woolen and worsted yarns and woolen and worsted cloth. Apparel wool, on the other hand, showed a modest gain in consumption when compared with the volume in 1944. For carpet wools, the 1945 consumption level was almost 20 per cent higher.

Clothing shortages were not as acute in 1945 as was generally supposed, else manufacturers could hardly have shown production and sales volumes which broke all earlier records. In the dress field, improvement in the flow of supplies is likely to come more rapidly for rayon and wool fabrics than in cotton dress goods, and it is all but certain that manufacturers of men's suits and overcoats in 1946 will enjoy the largest volume in history, so incessant is the demand of returned veterans and of other civilians who want and are able to buy that extra or that better suit.

The output of leather and leather products showed an increase of about 3 per cent over the 1944 index. Leather tanning was only fractionally better than in the previous year, but shoe production was almost 7 per cent higher than in 1944.

PETROLEUM AND REFINERY PRODUCTS

Crude petroleum production in 1945 expanded by about 2½ per cent over the total for the previous year. In establishing this mark, the index was some 46 per cent above the average for the base period (1935-1939). Gasoline production broke all earlier records, exceeding the 1944 volume by almost 10 per cent. Other refinery products, were produced in greater volume than in the preceding year, except kerosene which just about held its own; for fuel oil the increase was about 2 per cent and for lubricating oils, the increase approximated 3 per cent. But for the disappointing showing of the automobile industry, production in which fell months behind schedule, refinery operations might well have provided even more glowing records of production, so completely had this industry reconverted to peacetime concepts.

As the year ended, stocks of gasoline at refineries, in transit, and at bulk terminals were around 90,000,000 barrels and were piling up at a rate in excess of 2,000,000 barrels weekly. It is of more than passing moment, too, to record that the peak wartime production of crude petroleum exceeded 5,000,000 barrels a day which level promises not only to be maintained but also eclipsed during 1946, once oil field equipment becomes plentiful. The year 1946, too, promises to see an expanded modernization program on the part of principal refineries and an extension in service stations not only to service automobiles but also commercial and pleasure aircraft. Almost irrespective of likely improvement in the natural rubber situation, large use of oil in the manufacture of synthetic rubber is all but assured for years to come.

PAPER AND PAPER PRODUCTS

In transition, as in war, the paper and paper products industries had a difficult time of it. For 1945 the combined index of production was about 1½ per cent lower than for 1944 and about 3 per cent smaller than for 1943. Even so the level of output was some 33 per cent higher than the average for the five years, 1935-1939. Production of wood pulp, mechanical and chemical combined, did manage to maintain the 1944 level, thanks to the effectiveness of the waste salvage program.

The 1945 output of paperboard containers showed a gain of about 2 per cent over the total of the previous year but fine paper production showed a shrinkage of more than 25 per cent and was only a little more than 60 per cent as large as in 1943. Printing paper production expanded by almost 10 per cent in 1945 but the output of tissue and absorbent paper receded by some 6 per cent from the 1944 total and by some 14 per cent from the 1943 level. Wrapping papers were produced in about 7 per cent greater volume than in 1944 and 1943 while newsprint production barely scaled the 1944 total for an index that was some 20 per cent smaller than the average during the five years, 1935-1939.

The printing and publishing industries, in recording an expansion of 7 per cent, almost reached in 1945 the volume they enjoyed in 1943. At the same time, though the newsprint situation eased somewhat, as may be seen from a 6 per cent consumption gain, newsprint deliveries to consumers in 1945 were 9 per cent lower than in 1944.

CHEMICAL PRODUCTS

The index of the output of chemicals and chemical products, because of large cutbacks in explosives and ammunition after VJ-Day, was 12 per cent lower in 1945 than in 1944; the loss from 1943 exceeded 26 per cent. Paint production barely equaled the 1944 total but soap output was about 2 per cent smaller. The output of rayon, however, in recording an advance of about 3 per cent broke all earlier records and for the year was almost 145 per cent higher than the average in the base period (1935-1939). Industrial chemicals sustained a production loss from 1944 of around 2 per cent.

In dollars, the value of chemical production in 1945 was probably near $2,200,000,000, for a loss of perhaps as much as 15 per cent from the total for 1944. Further decline seems probable in 1946 whether measured by volume or value because of the loss of the war-born demands for explosives and ammunition. Capacities and plants previously engaged in such production, however, may be counted upon to be turning out synthetic fibers, plastics, unbreakable glass, laminations of plastics and wood, hydro-carbons and a wide variety of other products that not long ago were only in the test-tube stage. Consider plastics: here, 1946 output is likely to reach and exceed 1,000,000,000 pounds for the first time, against a figure of not more than 900,000,000 pounds in 1945 and perhaps 800,000,000 pounds in 1944.

Drug and pharmaceutical production in 1945 was well sustained and promises to expand further in 1946 when manufacturers of both ethical and proprietary drugs complete their planned expansion programs which involve expenditures equaling or exceeding amounts spent at the wartime peak.

RUBBER PRODUCTS

The production of rubber products in 1945 showed a loss of some 8 per cent from the volume of the previous year. Even so, the 1945 total was about 115 per cent higher than the average for the five-year period, 1935-1939. What the industry lost in production in 1945 is likely to be more than made up in 1946, if for no other reason than the unsated demand for tires to meet which the industry will likely produce at least 85,000,000 units, both for passenger cars and trucks. Natural rubber will once again be in evidence perhaps in a ratio of 1 to 2 of synthetic rubbers, with every indication that the aggregate tonnage of raw-rubber to be used, all kinds, will hit an all-time high.

MINE OUTPUT

The 1945 record of mine production—copper, silver, coal, iron, petroleum, lead, zinc, and gold—unlike the situation with respect to manufacturing output, almost equaled the level of the preceding year; for fuels as a group the index was about on a par with that for 1944 while for metals, a loss of only about 3½ per cent occurred.

ELECTRIC UTILITIES AND EQUIPMENT

Termination of war contracts brought with it a drop in electric power output as was to be expected; yet, the overall decline for the year as a whole approximated only 3 per cent. The domestic load, taken alone, however, showed an expansion of 9 per cent over the corresponding total for 1944.

Manufacturers of electrical equipment of all descriptions showed a production total of about $7,000,000,000 in 1945 for a loss of more than 20 per cent from the all-time peak of the preceding year and in contrast with a volume of but $2,475,000,000 in 1940. Irrespective of the large cutback which occurred in 1945, however, further retrenchment is almost certain for 1946 which might run to as much as 40 per cent, there being nothing on the horizon that can take up the slack which was caused by the termination of hostilities.

RAILROADS AND RAILROAD EQUIPMENT

War over, the job of the railroads to move the military and its equipment was yet to be completed. Moreover, the nation was still to regain the comfort and conveniences of rail travel and the timeliness of freight deliveries of the days before Pearl Harbor. To restore such service, even to improve it, and to take its rightful position in the competitive struggle for a place under the transportation sun, the railroads of the nation have made broad plans which, over the next three years, are to involve capital expenditures of almost $1,750,000,000. All of this can only mean expansive production in a wide variety of feeder industries, such as steel, locomotives, freight and passenger cars, rails, even lumber and building materials.

IRON AND STEEL

Measured by the index of the Board of Governors of the Federal Reserve System, iron and steel production in 1945 was about 11 per cent lower than in 1944. Nevertheless, the year's volume was about 85 per cent higher than the average for the five years 1935-1939. Pig iron output was about 12½ per cent smaller than in 1944 while the output of steel was about 10 per cent lower. The shrinkage in electric steel was understandably much greater than was the decline in open hearth production, 16½ per cent in the former and about 10 per cent in the latter. As the year drew to a close, a steel strike loomed that threatened further to disturb and retard the conversion processes in many steel-consuming industries.

NON-FERROUS METALS

Non-ferrous metals as a group sustained a production loss of 20 per cent from the 1944 volume; yet, the 1945 index was 107 per cent above the average for the base period (1935-1939). Smelters' and refiners' operations were almost 30 per cent lower than in 1944 while operations of fabricators declined by only about 18 per cent.

AUTOMOBILES

Perhaps the greatest disappointment of 1945 occurred in the automobile industry, for which production estimates had ranged up to 750,000 passenger units for the months after VJ-Day, in contrast with a realized total of no more than 75,000. Civilian truck production fared better, with an estimated 1945 total of 315,000 units. Even as this is written a dark cloud still hovers over the industry, strikebound itself and, worse, enmeshed in a net of strikes, real and threatened, in feeder industries and in steel. Where is the 7,000,000 car production objective, when now it is already clear that a production total of as high as 4,500,000 for 1946 would be a real accomplishment?

MACHINERY AND EQUIPMENT

Machinery production in 1945 sloughed off substantially from the totals for both 1944 and 1943, the losses amounting to 21 per cent and 22 per cent, respectively. The real impact of victory was best reflected, however, by the December 1945 index which was only 60 per cent as high as a year earlier; yet, it should be noted that the volume for 1945 as a whole was virtually 3½ times as great as the average for the five years, 1935-1939, and that for December alone it was still 2½ times as great as that peacetime average, and that if such a level could be maintained it would tell of continued high industrial activity.

Machine tool output in 1945 had an estimated value of around $400,000,000. For 1946 it is likely to drop to $250,000,000; nevertheless, such a volume would be at least $50,000,000 in excess of the total for the best prewar year. Demands for machine tools on the part of manufacturers of automobiles, farm equipment, and electrical equipment will in 1946 no doubt account for a large proportion of the total output.

The index of production covering transportation equipment (automobiles, aircraft, railroad cars, locomotives, shipbuilding) declined by almost one-third from the 1944 level; worse, the December, 1945, index was hardly 35 per cent as high as the figure for December, 1944; nor is it likely that gains in 1946 for automobiles, railroad cars, and locomotives can offset further certain losses that loom for aircraft production and shipbuilding.

BUILDING CONSTRUCTION AND MATERIALS

Second only to agriculture in its importance to our economic health, the construction industry for 10 of the 12 months of 1945 exhibited unmistakable signs that it was readying itself for better times. For the year as a whole, new construction started, private and public, involved committed expenditures that were at least 60 per cent higher than those covering work started in 1944, part of which increase, to be sure, was owing to increased costs. If only the construction industry, most especially residential building, and the automobile industry, together, could find release from the pegging influences of labor-management differences all across the economic stage, much of the promise for full production and full employment could be realized.

Lumber output in 1945 was almost 20 per cent smaller than in 1944, while for December alone, because of labor difficulties, the production was off by virtually 30 per cent from a year earlier; worse, with all the pent-up demand, the year 1945 only managed to show a production total equal to the average for these relatively lean construction years, 1935-1939. Cement output, on the other hand, was almost 12 per cent greater in 1945 than in 1944 and for December alone showed a gain over the December 1944 total of better than one third. Paradoxically, clay building products and gypsum and plaster products in 1945 were produced in smaller aggregate volumes than in the preceding year. Plumbing and heating equipment, too, were on disappointing production schedules. Whatever else this distressing situation reflected, it served most of all to point up the need for a new approach to a very old problem. The basic construction industry is notoriously one of famine or feast. Left to flounder, the entire transition process could be irretrievably retarded.

CONCLUSION

With reckless abandon, we were increasingly coming to ignore the facts of history. The "silk-shirt" era of a generation ago was back in meretricious attire. Gold toothpicks, mink wraps for canine pets, hand-painted neckties, black markets, crime waves, stock market tips, speculation, industrial strife, were but the outward evidences, the symbols, by which we may for all time identify these turbulent days. Beneath such veneers, however, were forces that long since had been deeply grained. After years of war and its inevitable dislocations—social, economic, even political—these forces will either rule this generation or be harnessed by it and turned to useful account. There is no middle course. Only understanding, compromise, decision, and action can produce the tools by which the nation may avoid the horrendous implications of our new and explosive pattern of savings, purchasing power, short supplies, and unparaleled demands.

THE UNITED STATES TARIFF COMMISSION

By Oscar B. Ryder
Chairman, The United States Tariff Commission

Commissioners

Oscar B. Ryder, Chairman
Lynn R. Edminster, Vice Chairman
Edgar B. Brossard
E. Dana Durand
George McGill

E. M. Whitcomb, Acting Secretary
New York Office—Room 513, Custom House
Samuel W. Pitts, In Charge

FUNCTIONS OF THE COMMISSION

The United States Tariff Commission is an independent nonpartisan Government agency whose principal function is to ascertain facts upon the basis of which Congress may determine policies affecting the foreign trade of the United States.

Title VII of the Revenue Act of 1916 provided for the establishment of the Tariff Commission and outlined the general scope of its functions. The Tariff Commission's basic functions were extended under the Tariff Act of 1922 by the inclusion of section 315—the flexible-tariff provision; section 316—the provision prohibiting unfair acts in importation of goods; and section 317—the provision for penalizing the trade of countries which discriminate against the trade of the United States. Similar provisions were continued in the Tariff Act of 1930 in sections 336, 337, and 338, respectively. From time to time other special provisions of law gave the Commission additional duties. Among these were Section 22 of the Agricultural Adjustment Act, and the Trade Agreements Act which was enacted in 1934 for a three-year period and extended in 1937, 1940, 1943, and with increased authority in 1945. The Trade Agreements Act required that information and advice be sought from the Tariff Commission in connection with the negotiations of agreements.

HISTORY OF THE COMMISSION

In the first few years of its existence, the Commission published reports on reciprocity and commercial treaties, on colonial tariff problems, and on customs administrative laws, and a series of reports on commodities for which the war had raised special problems of tariff policy. In 1921, to assist in the Congressional tariff revision then under way, it issued the first edition of the *Summaries of Tariff Information* (now called *Summaries of Commodity Information*), containing data on production, imports, exports, and competitive conditions respecting all commodities involved in the import trade of the United States.

From 1921 through 1933 the Commission, in addition to its extensive activities under the flexible provisions, published a number of extensive surveys and reports on specific commodities, and expanded and brought up to date the *Summaries of Tariff Information*, which were a constant source of reference during the consideration by the Congress of the bill which became the Tariff Act of 1930.

From 1934, when the Trade Agreements Act was passed, until the beginning of the war in 1939, work in connection with trade agreements constituted the largest segment of Commission activities. Other work, mainly under general powers of the Commission, continued on a substantial scale. Of special importance were the extensive reports prepared during this period on the trade and trade policies of countries such as Japan, the Philippines, Germany, Italy, and France. Almost as important were the reports prepared on commodities such as wood pulp, nitrates, and iron and steel, which presented special import problems.

WAR AND POST-WAR ACTIVITIES

Beginning in the fall of 1939, the Commission directed its activities largely to immediate war problems and to giving all possible assistance to defense agencies and to their successor war agencies. Almost immediately after the beginning of the war in Europe, the Commission made a study of the current and probable future effects of the war on United States imports and on the ability of this country to provide commodities necessary for defense and civilian consumption. When the Office of Emergency Management was established, it not only drew personnel from the staff of the Tariff Commission but in part of its work relied largely on commodity information compiled by the Commission's staff. As war agencies succeeded defense agencies, the cooperative activities of the Tariff Commission were increased to give every possible assistance in the prosecution of the war.

Beginning in the fall of 1943, the Commission turned increasing attention to post-war problems. At first on its own initiative and later at the request of the Finance Committee of the Senate and the Ways and Means Committee of the House, the Commission undertook the preparation of a series of special reports on the post-war foreign-trade position of the United States, as to its total trade and as to its trade in specific commodities and with specific countries. Fifteen reports in this series have so far been completed and work is proceeding as rapidly as possible upon the remaining reports planned to be included in the series. This and activities in connection with the expanded trade agreements program will be the most important phases of the Commission's work during 1946.

CURRENT WORK IN POST-WAR ESTIMATES

The current work of the Commission falls under the following headings: (1) Work in response to Congressional requests, (2) work on trade agreements, (3) work on interdepartmental committees, (4) work for war agencies, and (5) miscellaneous work.

By far most of the Tariff Commission's work during the past year was directly requested by the Congress or by Congressional committees. In December 1944 the Senate adopted Senate Resolution 341, directing the Tariff Commission, under certain assumptions as to national income and tariff treatment, to estimate, for all articles imported in 1939 with a value in excess of $100,000, post-war production, consumption, imports, and employment. The resolution required the Commission to give precedence to work under it over all other work except that for war agencies, and from December 1944 through April 1945 the entire available staff was put to work preparing the reply to the Senate. Data relating to more than 450 articles or groups were closely examined. The report is now available in printed form and represents the only comprehensive and thoroughgoing analysis that has been made as to the probable course of the import trade of the United States in the post-war period.

The Senate Committee on Finance and the House Ways and Means Committee have requested reports on: (1) United States industries which have been substantially affected by the war in such manner as to alter their competitive position in relation to the industries of foreign countries, with particular attention to those domestic industries which have had, or may be expected to have, important problems of competition from imported articles; (2) effects of the war on the general foreign-trade position of the United States; and (3) changes since 1929 in the international trade policies of foreign countries, particularly as they have affected and are likely to affect the trade of the United States.

In response to the first of these requests, the Commission is preparing a series of reports, designated as War Changes in Industry series, relating to 75 major commodities or industries. Each report of the series reviews the conditions of production and competition in the industry before the war, the changes caused by the war, and the problems which may be encountered after the war. Fifteen of these reports have been issued. They cover the following subjects:

Raw Wool
Industrial Alcohol
United States Stock-pile Wools
Dehydrated Vegetables
Mercury
Rubber
Pottery Tableware
Red Cedar Shingles
Sheet (Window) Glass
Magnesium
Cigarette Paper
Magnesite
Hides, Skins, and Leather
Iron and Steel
Aluminum

Other important commodities included in this series are the following:

Dyes
Animal and Vegetable Oils and Fats and Materials Thereof
Watches
Cattle and Beef
Rayon, Nylon, Other Synthetic Fibers, and Raw Silk
Copper
Lead
Zinc
Nitrates
Petroleum
China Clay
Newsprint
Countable Cotton Cloths
Woolens and Worsteds

PROBLEMS OF COMMERCIAL POLICY

In preparing the report called for by the second request—on the effect of the war on the general position of the United States in world trade—the Commission is attempting to concentrate attention on the crucial problems of commercial policy which are facing the United States.

The request for a report on the changes in the international trade policies of foreign countries since 1929, particularly as they affect the industry and trade of the United States, is being answered by the issuance of a series of reports covering selected countries. As part of this series, the Commission is preparing reports on each of the Latin American countries, covering the probable post-war conditions as to economic controls and commercial policies; and, for the more important countries, reports on agricultural, pastoral, and forest industries; mining and manufacturing industries; and recent developments in foreign trade. About 50 of these reports are planned; 35 have been completed. The Commission has also completed a series of studies on prewar commercial policies and trade in Greece, Rumania, Bulgaria, Yugoslavia, Spain, and Austria, and is preparing reports on the principal countries in the British Empire.

PUERTO RICO AND THE PHILIPPINES

At the request of the Senate Committee on Territories and Insular Affairs, a report is being prepared on the Economy of Puerto Rico which deals with the varied and difficult problems that arise in the administration of this island possession.

Philippine problems created by the war are very serious and have been given much attention by the Commission. The Vice Chairman of the Commission, by designation of the President, serves as a member of the Filipino Rehabilitation Commission, and members of the staff contribute to the work of that body.

A senior member of the staff has been assigned at the request of the President to assist in a special study of Philippine problems. Legislation incorporating the results of this study, now pending before the Congress, has been the subject of a recent report.

EXTENSION OF TRADE AGREEMENTS ACT

Of special importance is the work done for the Congress in connection with pending legislation. The largest volume of such work was done in connection with the extension of the Trade Agreements Act. Members of the staff were assigned to assist both the majority and minority members of the Ways and Means Committee and the Senate Finance Committee. The Commission also prepared for the Ways and Means Committee an index to the voluminous hearings on the extension of the Trade Agreements Act. In addition numerous reports have been prepared on bills relating directly or indirectly to foreign trade.

TRADE AGREEMENTS WORK

The Commission is represented on the Trade Agreements Committee and the Vice Chairman heads the Committee for Reciprocity Information. In addition, the Commission is represented on all the country committees and other special subcommittees set up to serve the Trade Agreements Committee. Currently, negotiations are being considered with many important trading countries of the world. The greatly increased work on trade agreements is expected to continue to increase throughout this fiscal year and to remain at a high level throughout the next fiscal year.

The Tariff Commission issues digests of information with reference to each trade agreement. The information contained in these digests represents material drawn from the detailed data made available by the Tariff Commission to the trade agreements organization on domestic production, imports and exports, and conditions of competition for commodities on which the United States has made concessions in the trade agreements.

The digests constitute the only form in which this information is published and are in demand by the domestic industries concerned, the importing trade, and the Congress.

In addition to direct work of the Commission on trade agreements, the staff also serves the Committee for Reciprocity Information both in the matter of research and in the summarization of briefs and testimony submitted to that Committee.

WORK ON INTERDEPARTMENTAL COMMITTEES

Much of the contribution which the Commission makes toward the solution of questions of international trade policy is made through its representation on, and work for, interdepartmental committees. In addition to its representation on the Executive Committee on Economic Foreign Policy and on the Trade Agreements Committees, members of the Commission or of its staff serve on many interdepartmental committees organized to assist those committees and on others sponsored by various government departments.

WORK FOR WAR AGENCIES

About one-fourth of the Commission's activities during the fiscal year 1945 was directly for war agencies. The surrender of Japan necessitated review of these activities and most of them will be terminated before the end of the fiscal year 1946.

During the fiscal year 1945 half of the accounting force of the Commission, assisted by commodity experts and economists, was assigned to projects having to do largely with the costs and the cost-price relationships prevailing among firms from which the War Food Administration was purchasing supplies. The principal commodities covered were milk; canned meats; butter, cheese, and evaporated, condensed, and dried milk; canned vegetables and fruits; eggs; and fish. As a result of the Commission's investigations, the War Food Administration was placed in a position to determine what adjustments should be made in existing contracts or what changes should be made in future contracts in the interests of both the Government and producers.

Work for the Office of Price Administration during the same period was related almost entirely to costs and selling prices of textile products, principally print cloths, fine cotton cloths, and shirts, shorts, and nightwear. For all products the work has involved difficult cost accounting problems, and its results have formed a basis for many of the decisions made by the Office of Price Administration in pricing the products in question.

Cooperation between the Tariff Commission and the Foreign Economic Administration and its predecessor organizations has always been extensive. The principal phase of activities for FEA in the past fiscal year was the study of the Japanese economy and trade for the purpose of determining the extent to which Japanese facilities were built up for war purposes either directly or indirectly, and the effect of the continuance or discontinuance of the several industries in the post-war period on the trade and economy of the United Nations, particularly the United States.

The War Production Board has depended upon the Tariff Commission for the collection of production and sales statistics on synthetic organic chemicals, and for the tabulation and analysis of statistics on domestic consumption of certain fibers. Through its New York office, moreover, the Commission has supplied the Board, especially its Bureau of Stockpiling and Transportation, with current information obtained by invoice analyses of imports of numerous commodities.

The Commission's work for the War Department has been varied. At times during the past year the Commission lent especially qualified personnel for assignment to particular subjects. At present, the Commission is collaborating with the Department in its program for investigating the Japanese textile and leather industries, and is also making available certain of its experts for work on similar programs in conquered territory other than Japan.

MISCELLANEOUS WORK OF THE COMMISSION

Under this heading fall projects such as the Census of Production and Sales of Synthetic Organic Chemicals; the investigation now in progress on the Customs Administrative Laws; and the general commodity work of the Commission.

Work on the annual Census of Synthetic Organic Chemicals has been carried on continuously since 1918. The latest report, for the year 1944, was issued. During the war, final reports on these synthetics were withheld for security reasons; but data for the years 1941, 1942, and 1943 are now being printed in one volume for the use of those concerned with production and trade in these products.

Section 332 of the Tariff Act of 1930

directs the Tariff Commission, among other things, to investigate the operations of customs laws. The Commission has initiated such a study, in the course of which the entire range of customs administrative laws and procedures is being scrutinized carefully to determine where changes should be made in order to make it more likely that the objectives set forth in the laws are reached.

The Tariff Commission maintains a small force in New York City. The office analyzes the entry papers and obtains data needed by the Commission or by other government agencies to supplement the information on imports contained in published statistics of the Department of Commerce. The data so obtained are included in the summaries of commodity information, and some that are of particular value to the trade are issued for public distribution.

ADMINISTRATION OF TARIFF LAWS

By C. A. Freeman
Division of Fiscal Administration, Bureau of Customs, Treasury Department

GENERAL

Even with the war in Europe ended and with that in the Orient rapidly approaching its climactic conclusion, the end of the fiscal year 1945 found the foreign commerce of the United States, in no less a degree than its domestic economy, as much on a wartime basis as at the year's beginning. In consequence, the nature and sources of our imports and of the revenues collected therefrom, continued during the last full year of the Second World War, to be determined more by the exigencies of war than by ordinary consumptive requirements. In addition to those activities which could be measured in fiscal terms, non-fiscal customs activities continued to a large degree to reflect wartime pressures and distortions.

CUSTOMS COLLECTIONS

The total revenues collected in 1944 by the Customs Service, including collections for other departments and Puerto Rico collections other than duties, amounted to $561,101,058, a decrease of 22.8 per cent from the 1944 total ($727,251,316) which was the highest in customs history. Of these totals, $201,890,315 in 1945 and $292,019,928 in 1944 represented internal revenue taxes collected by customs officers on imported distilled and vinous liquors, a decrease of 30.9 per cent.

Customs duties alone yielded $354,741,316 in 1944, a decline of 17.8 per cent from the previous year's duty yield ($431,310,620), which had been exceeded only nine times in the country's history—in 1937 and in the eight successive years from 1923 to 1930 inclusive. From a low of $23,147,000 in August 1944 (the lowest since November 1942), duty collections climbed steadily and almost continuously to a peak of $35,806,583 in May, suffering only a sharper decline than usual in the short month of February and the customary seasonal decline in June.

Reduced collections from consumption entries and warehouse withdrawals, the two most important types of entries, in the greatest measure accounted for the lower total of collections for the fiscal year. A greater volume of tourist travel was reflected in increases in duties collected on baggage and informal entries. The amount of duties collected on mail entries increased slightly, although the number of mail entries was less than during the preceding year.

SOURCES OF CUSTOMS REVENUE

In order of importance, wool, alcoholic beverages, and agricultural products provided the greatest sources of customs revenue in 1945. Collections on sugar and sugar products, one of the three major sources of revenue in 1944, declined sharply during the past year from $55,040,910 to $10,319,515, or 82.3 per cent. This situation was induced by Executive Order 9177, which permitted free entry of most sugar imports during 1945, with the

VALUE OF DUTIABLE IMPORTS FOR CONSUMPTION AND ESTIMATED DUTIES COLLECTED, BY COUNTRIES

(Fiscal Years 1944 and 1945)

(In Thousands of Dollars)

Country	Duties		Value		Percentage Increase or Decrease (−) 1945 over 1944	
	1944	1945	1944	1945	Duty	Value
Europe:						
Bulgaria	$ 324	$ 154	$ 549	$ 273	−52.5	−50.3
France	107	144	269	503	34.6	87.0
Greece	1,969	792	3,210	1,342	−59.8	−58.2
Ireland	252	75	977	229	−70.2	−76.6
Italy	19	49	59	279	157.9	372.9
Portugal	13,352	7,265	23,795	16,558	−45.6	−30.4
Spain	10,991	11,969	30,585	45,715	8.9	49.5
Sweden	35	180	155	813	414.3	424.5
Switzerland	21,993	18,083	58,871	50,783	−17.8	−13.7
U.S.S.R.	767	1,335	2,477	4,934	74.1	99.2
United Kingdom	23,173	19,223	58,520	48,904	−17.0	−16.4
Other countries	382	258	1,753	877	−32.5	−50.0
Total Europe	73,364	59,527	181,220	171,210	−18.9	−5.5
North and Central America:						
Canada	36,959	50,381	256,867	344,023	36.3	33.9
Cuba	108,544	42,812	270,992	100,919	−60.6	−62.8
Dominican Republic	157	281	1,006	1,662	79.0	65.2
French West Indies	4,520	1,202	2,896	666	−73.4	−77.0
Jamaica	1,282	629	3,600	1,518	−50.9	−57.8
Mexico	22,822	18,486	80,640	89,572	−19.0	11.1
Netherlands West Indies	1,094	1,279	4,718	4,669	16.9	−1.0
Newfoundland	182	220	2,033	2,364	20.9	16.3
Other countries	1,448	1,347	7,555	7,104	−7.0	−5.9
Total North and Central America	177,008	116,637	630,307	552,497	−34.1	−12.3
South America:						
Argentina	39,746	31,387	88,983	77,378	−21.0	−13.0
Bolivia	12	58	74	162	383.3	118.9
Brazil	3,625	5,026	34,055	42,677	38.6	25.3
Chile	4,460	5,229	7,816	9,854	17.2	26.1
Colombia	767	867	8,452	9,304	13.0	10.1
Paraguay	180	155	2,387	2,196	−13.9	−8.0
Peru	2,134	2,207	5,487	6,304	3.4	14.9
Uruguay	21,433	28,649	35,345	45,114	33.7	27.6
Venezuela	2,701	5,271	27,114	54,784	95.1	102.1
Ecuador	593	608	6,506	5,811	2.5	−10.7
Surinam	883	550	6,228	3,800	−37.7	−39.0
Other countries	193	77	1,240	562	−60.1	−54.7
Total South America	76,727	80,084	223,687	257,946	4.4	15.3
Oceania:						
Australia	55,165	41,392	101,286	67,855	−25.0	−33.0
New Zealand	4,456	7,459	8,875	12,640	67.4	42.4
Other countries	129	87	637	503	−32.6	−21.0
Total Oceania	59,750	48,938	110,798	80,998	−18.1	−26.9

Country	Duties		Value		Percentage Increase or Decrease (−) 1945 over 1944	
	1944	1945	1944	1945	Duty	Value
Asia:						
British India	4,169	5,095	25,517	29,323	22.2	14.9
China	258	169	920	425	−34.5	−53.8
Iran	1,204	2,570	2,487	6,078	113.5	144.4
Netherlands Indies	3,146	2,317	3,898	2,869	−26.4	−26.4
Palestine	897	1,521	8,856	14,988	69.6	69.2
Syria	934	1,110	616	924	18.8	50.0
Turkey	9,874	13,230	22,644	42,099	34.0	85.9
Other countries	471	882	1,870	4,531	87.3	142.3
Total Asia	20,953	26,894	66,808	101,237	28.4	51.5
Africa:						
Egypt	560	319	4,710	2,799	−43.0	−40.6
Gold Coast	643	1,081	1,957	1,966	68.1	0.5
Madeira Islands	2,205	3,538	3,462	5,717	60.5	65.1
Union of South Africa	8,421	4,985	21,969	14,917	−40.8	−32.1
Madagascar	40	267	1,264	5,904	567.5	367.1
Other countries	469	818	2,805	3,695	53.1	31.7
Total Africa	12,338	11,008	36,167	34,998	−10.8	−3.2
Grand Total	420,139	343,087	1,249,036	1,198,884	−18.3	−4.0

result that imported cane sugar yielded less than one-sixth as much revenue in 1945 ($8,578,683) as in the previous year ($53,286,873). This decrease, together with smaller collections from wool and alcoholic beverages, more than accounted for the entire recession in customs revenue during 1945.

With the moderating of previous restrictions on the production of alcoholic beverages, imports declined sharply and liquor duties were correspondingly reduced in 1945 to but 55.5 per cent of the total for the peak year of 1944. Nevertheless, 1945 collections on such imports exceeded by 19.9 per cent the duties collected on alcoholic beverages in 1937, the high year prior to 1944. The agricultural products schedule exhibited the largest absolute increase over 1944 ($14,357,825) the result of greatly increased importations of corn, oats, wheat, potatoes, apples, and almonds. Manufactures of rayon or other synthetic textiles, although a relatively minor source of revenue, also yielded a pronounced increase over the preceding year in that duty collections on such imports rose from $118,066 in 1944 to $264,562 in 1945, an increase of 124.1 per cent.

The impact of the war on our foreign commerce is even more graphically reflected in the territorial sources of customs revenue, than in the commodity sources. Naturally enough, duties on imports from Europe and Asia shrank as the war progressed. In the case of Europe, the decline was continuous from 1938 to 1943, and after a slight up-turn in 1944 a new low was reached during the past year. In the case of Asia three years of successive declines from 1941 to 1944 were followed by a slight increase in revenue in 1945.

Europe's decline in importance as a source of revenue was proportionate as well as absolute, 47.6 per cent of customs revenue being derived from duties on European goods in the last year before the war (1939) and only 17.4 per cent in 1945. Duties on imports from three of the neutral countries in Europe, however, skyrocketed during the war, the combined total for Switzerland, Spain, and Portugal amounting to $37,317,000, (62.7 per cent of the European total) in 1945 compared with $13,030,000, (8.8 per cent of the total) in 1939. In fact, these three countries, together with the United Kingdom, accounted for 98.1 per cent of the 1945 total for Europe compared with 35.9 per cent in 1939. The 1945 up-turn in duties on imports from Asia was owing to increased collections on merchandise from Turkey, British India, Iran, and the Levant.

With collections on imports from Europe and Asia progressively declining, the portion of the world not blockaded or overrun by opposing armies furnished much more of our imports than before the war and consequently was the source of greatly increased revenues. Duties from imports from North and Central America rose from $69,006,000 in 1939 to $117,008,000 in 1944 and receded $116,637,000 in 1945. Duties on imports from South America in 1945 were more than doubled, those on African products almost trebled, and those from Oceania eight times the 1939 collections. The decline during the past year in the collections on North and Central American goods was owing to the smaller imports of alcoholic beverages and to the admission of a great deal of sugar duty free. A very considerable portion of the duties on imports from South America, Oceania, and Africa was derived from the continued heavy imports of wool.

VOLUME OF BUSINESS

The number of entries of merchandise constitutes one of the non-fiscal activities of the Customs Service which serves as an index of the trend of trade. Even with the decline in duties of consumption entries the number of such entries showed a slight

VALUES OF DUTIABLE AND TAXABLE IMPORTS FOR CONSUMPTION AND ESTIMATED DUTIES AND TAXES COLLECTED BY TARIFF SCHEDULES

(Fiscal Years 1944 and 1945)

(In Thousands of Dollars)

Tariff Schedule	Value		Estimated Duties and Import Taxes[1]		Percentage Increase or Decrease (—) 1944–1945	
	1944	1945	1944	1945	Value	Duties
1. Chemicals, oils and paints	46,128	68,176	8,232	9,047	47.8	9.9
2. Earths, earthenware, and glassware	15,163	12,346	3,658	3,361	−18.6	−8.1
3. Metals and manufactures	125,565	120,016	31,731	28,368	−4.4	−10.6
4. Wood and manufactures	32,383	40,930	2,053	2,473	26.4	20.4
5. Sugar, molasses, and manufactures	193,713	34,264	55,041	10,319	−82.3	−81.3
6. Tobacco and manufactures	53,678	82,541	23,392	29,534	53.8	26.3
7. Agricultural products and provisions	228,137	326,846	32,391	46,749	43.3	45.3
8. Spirits, wines, and other beverages	124,616	77,514	99,713	55,316	−37.9	−44.5
9. Cotton manufactures	9,565	12,723	2,784	2,431	33.0	−12.7
10. Flax, hemp, jute, and manufactures	16,829	14,318	2,609	3,388	−14.9	29.8
11. Wool and manufactures	210,481	182,973	129,217	116,923	−13.1	−9.5
12. Silk manufactures	581	759	288	362	30.6	25.6
13. Manufactures of rayon or other synthetic textiles	244	457	118	264	87.1	124.1
14. Pulp, paper, and books	8,055	8,266	1,124	1,171	2.6	4.2
15. Sundries	123,104	127,929	20,643	24,742	3.9	19.9
Free list commodities taxable under the Revenue Act of 1932 and subsequent acts	60,502	87,793	5,844	8,087	45.1	38.4
Dutiable under section 466, Tariff Act of 1930, etc.	290	1,033	1,299	552	256.3	−57.5
Total	1,249,036	1,198,884	420,139	343,087	−4.0	−18.3

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[1] Taxes collected on dutiable commodities under the revenue acts and the Sugar Act of 1937 are included in appropriate schedules.

increase, a preview of what can be expected when the shipping lanes are no longer clogged with the implements of war. The number of baggage and informal entries, on the other hand, increased very sharply as tourist travel bulged with the moderating of restrictions previously maintained. Vehicular and vessel movement also increased sharply during 1945, this being the fourth consecutive year to show an increase in border traffic. The only declines in border traffic were recorded in the number of passenger trains and freight cars which entered the country. Airplane traffic on international lines continued to increase for the 14th consecutive year. The expansion during 1945 was greater, both relatively and absolutely, than for any previous period. The number of airplanes arriving from abroad being almost double and the number of passengers arriving by plane more than double that of 1944.

SEIZURES

The number of seizures for the violation of customs laws were more numerous than during the previous year owing in part to the shortage of certain materials in the United States which provided an incentive to smuggling and in part to the increased tourist travel and to the return of Army and Navy personnel from abroad. The value of seizures of cigarettes in 1945 was six times that of the previous year, and the value of guns and ammunition seized 12 times that of 1944. Narcotic and liquor seizures on the other hand were fewer in number than in 1944. The small importance of seizures of narcotics was owing not only to the breaking up of smuggling rings by the efficiency of enforcement officers but also to the small number of vessels arriving from Oriental ports. The decline in seizures of liquor coincided with an increase in quantity and quality of domestic supplies of alcoholic beverages.

MERCHANDISE ENTRIES

	Number of Entries		Duties Collected		Per Cent of Increase or Decrease (−)	
	1944	1945	1944	1945	No. of Entries	Duties
Consumption entries	389,962	390,497	$228,716,830	$187,568,193	0.1	−18.0
Warehouse and rewarehouse entries	30,834	27,413	—	—	−11.1	
Warehouse withdrawals	111,402	97,534	192,644,820	156,184,675	−12.5	−18.9
Mail entries	332,027	288,664	580,640	617,010	−13.1	6.3
Baggage entries	624,375	1,147,951	402,775	589,951	83.9	46.5
Informal entries	264,755	580,631	1,086,413	1,551,399	119.3	42.8
Appraisement entries	9,962	7,741	86,519	140,826	−22.3	62.8
Increased and additional duties	—	—	7,051,058	7,684,713	—	9.0
Other	485,957	437,721	741,565	404,549	−9.9	−42.8
Total	2,249,274	2,978,152	431,310,620	354,741,316	32.4	−17.8

RAILROADS

By John J. Pelley
President, Association of American Railroads

WAR FACTORS

From a railroad standpoint, the year 1945 was in many respects the most difficult of the entire war period. Bad weather conditions in the northeastern area in January and February, continuing shortages in manpower and materials throughout the year, the peak movement of war goods to the ports up to VE-Day, and the sharply increased movements to West Coast ports up to VJ-Day, the highly concentrated return movement of troops which began in June, and record grain loadings were the principal factors affecting railroad operations in 1945.

For the year as a whole, traffic was slightly below the all-time peak levels of 1944. Freight carloadings declined by 3½ per cent; freight ton-miles were less by 8 per cent; passenger-miles decreased by 5 per cent. Trends in both freight and passenger service varied sharply during the year. Compared with the corresponding period of the preceding year, ton-miles showed a decrease of 1.5 per cent up to VE-Day, a decrease of 4.6 per cent between VE-Day and VJ-Day, and a decline of about 18 per cent from VJ-Day to the end of the year. Passenger-miles, on the other hand, showed a reverse trend, declining 8.7 per cent in the first period, and 5.1 per cent in the second, but showing a small increase in the third.

FINANCIAL STATUS

From a financial standpoint, comparing the 12-month period ended Oct. 31, 1945, with the calendar year 1944, operating revenues declined 3 per cent; operating expenses increased 5½ per cent; net railway operating income decreased 11 per cent; the rate of return on property investment was 3½ per cent; net income after interest and other fixed charges declined 13 per cent. The year 1945 was the third consecutive year of decline in net earnings.

Traffic and financial statistics will be shown in some detail at a later point herein. Other principal developments during the year are discussed briefly below.

EMPLOYMENT AND WAGES

Employees of Class I railroads in 1945 numbered 1,422,000 and earned $3,925,000,000 in wages and salaries. The number of employees increased about one-half of one per cent over the preceding year, while their aggregate earnings rose nearly 2 per cent. The average compensation per employee per year was $2,760, the highest in history. The average hourly straight time rate of pay in 1945 was 93.3 cents, also a new high. The various brotherhoods and unions representing railroad employees filed demands in 1945 for substantial increases in rates of pay and for certain changes in working rules. The wage increases requested would, if granted, cost the railroads $1,205,000,000 per year, based on 1944 employment. Including proposed changes in rules, the overall demands would amount to increases of more than $2,000,000,000 in railroad operating costs. The demands were in the conference stage at the year's end.

MEXICAN WORKERS AND OTHER MANPOWER FACTORS

Under the agreement between the United States and Mexican governments, a maximum of 75,000 Mexican nationals were authorized for importation into this country in 1945 for railroad track work. These men were recruited in Mexico by the Railroad Retirement Board at the beginning of the railroad maintenance season and were brought into this country under six-month contracts as rapidly as transportation facilities permitted. Shortly after VJ-Day, the War Manpower Commission ordered further recruitment stopped, and also forbade renewals of contracts with Mexican nationals already at work in this country. The workers are being released and returned to Mexico as rapidly as conditions will permit.

As in the two preceding years, railroads were seriously short of manpower in 1945. While the situation eased somewhat following VJ-Day, the abrogation of the Mexican program, as well as continuing high labor turnover rates, made the problem a difficult one throughout the year. Thousands of women were continued in unusual and unaccustomed occupations to help offset the shortages.

OFFICE OF DEFENSE TRANSPORTATION

Shortly after VJ-Day, the Office of Defense Transportation began to curtail its activities. This agency rescinded many of its wartime orders, and others will be eliminated as soon as conditions warrant. The number of persons employed by ODT was reduced to about 90 at the end of 1945, compared with a maximum of about 5,000 at the peak of the war period. For the period since VJ-Day, the attention of the Office has been directed primarily to the movement of troops returning from the European and Pacific areas. Director J. Monroe Johnson announced that June 30, 1946 is the tentative date set for the termination of ODT's activities.

RATES AND FARES

There were no changes in 1945 in the general levels of freight rates and passenger fares. The freight rate increases authorized early in 1942 and suspended on May 15, 1943, were continued in suspension by order of the Interstate Commerce Commission "until a date 6 months after the legal termination of the war." The 10 per cent increase in passenger fares authorized in 1942 have continued in effect since that time but will automatically expire six months after the legal end of the war. That date has not yet been determined. By an order handed down on May 15, 1945, the I.C.C. ordered an increase of 10 per cent in class rates in official (eastern) territory and a decrease of 10 per cent in such rates in other territories east of the Rocky Mountains. This was an interim measure to apply until a uniform freight classification and class rate structure applicable to the country as a whole could be worked out. The effective date of the interim adjustment was to be Jan. 1, 1946. However, on Dec. 21, 1945, the Federal District Court in northern New York granted an interlocutory injunction enjoining enforcement of the order, and the Commission has indefinitely postponed the effective date.

GEORGIA RATE CASE

On March 26, the United States Supreme Court assumed original jurisdiction in the Georgia Rate Case and authorized the state to file a bill of complaint alleging violation of the Federal anti-trust laws by certain railroads. The Court appointed a Special Master to submit findings of fact and conclusions of law, together with a recommended decree.

RAILROAD ANTI-TRUST SUIT

The Federal District Court in Lincoln, Neb., denied the motion of the Association of American Railroads and others to dismiss the Government's anti-trust suit instituted in 1944. Motion for a bill of particulars was sustained in part, and March 3, 1946, was set as the date for filing.

ARIZONA TRAIN LIMIT LAW

On June 18, the Supreme Court declared the Arizona Train Limit Law to be unconstitutional. That state law, which had been in effect since 1912, limited the length of freight trains operated in Arizona to 70 cars and passenger trains to 14 cars. Enforcement of the law was suspended by order of the Interstate Commerce Commission during the war period.

PULLMAN COMPANY CASE

Toward the close of the year a Special Federal Court in Philadelphia approved the offer of a group of railroads to buy the sleeping car business of the Pullman Company. The court had before it a number of other offers from interests outside of the railroad industry. The Pullman Company had been ordered by court action to dispose of either its sleeping car business or its car manufacturing activities. The company chose to sell its sleeping car business.

LEGISLATION

A number of bills of importance to the railroad industry were introduced in the 1945 session of Congress. The Boren Land Grant Act (Public Law 256) was the only bill of major importance to the railroads to be enacted before Congress concluded its work for the year. The new law repeals the reduced rate provisions contained in the old railroad land grant acts, some of which have been in effect since 1850. The effective date of the repeal is Oct. 1, 1946.

Hearings on bills proposing extensive and far-reaching changes in the Railroad Retirement and Unemployment Compensation Acts were held in 1945 before both houses of Congress. Railroad employees appeared in support of the measures, while railroad managements opposed them. Among other things, the bills would incorporate into the present retirement and unemployment compensation systems a new feature embodying non-occupational sickness and accident insurance.

On Dec. 12, the House of Representatives passed the Bulwinkle bill. That bill would stay the operation of antitrust laws with respect to carrier agreements approved by the Interstate Commerce Commission. Enactment of the bill would clarify a situation that for the past several years has been highly confusing. These and other bills of lesser importance which received some attention in 1945 will be brought to a conclusion, one way or the other, in 1946.

RAILROAD TRAFFIC

The year 1945 closed another era in American history. From the standpoint of production and industrial achievement it was the greatest yet experienced. The country was not ready for war when it came, but once the emergency became apparent American industrial genius met the challenge with a record output of war goods and supplies.

It will ever stand to the credit of the railroad industry that it kept pace with other industries and met with adequacy and efficiency every demand made upon it in behalf of the war effort. At the outbreak of the war period the industry had been through 10 years of sharply reduced traffic and earnings, a result in part of the economic depression that prevailed throughout the 'thirties and in part of the devastating effects of government-aided competition from highway, inland waterway, and air carriers. Yet when the crisis came the railroads responded by performing two-thirds again as much freight service as they had ever been called upon to do before and more than twice as much passenger service. This they did with far less equipment and far fewer employees than had been available to them in earlier periods of heavy traffic volume. Shortages in steel and other critical war materials made it imperative for the railroads to do the job with minimum additions to equipment and other facilities.

The following table gives statistics

FREIGHT AND PASSENGER TRAFFIC, EQUIPMENT AND EMPLOYMENT RAILWAYS OF CLASS I IN THE UNITED STATES

	Freight Ton-Miles (000,000)	Passenger-Miles (000,000)	Number of Equipment Units			No. of Employees (000)
			Locomotives	Freight Cars (000)	Passenger Cars	
1945*	680,000	91,000	43,725	1,805	37,600	1,422
1944	737,246	95,549	43,612	1,794	37,837	1,415
1943	727,075	87,820	42,731	1,781	37,940	1,355
1942	627,984	53,659	42,033	1,769	38,051	1,271
1941	475,072	29,350	41,771	1,725	37,897	1,140
1940	373,253	23,762	41,721	1,675	37,817	1,027
1939	333,438	22,651	42,511	1,671	38,427	988
1933	249,223	16,341	50,903	2,061	46,510	971
1929	447,322	31,074	57,571	2,307	52,259	1,661
1920	410,306	46,849	64,746	2,351	53,501	2,023
1918	405,379	42,677	63,889	2,354	53,941	1,842

* Partially estimated.

of railroad traffic, equipment and employment during the war period just ended. For comparative purposes, data for 1918, the peak year in the First World War, and 1920 and 1929, years of pre-war peaks in passenger and freight traffic, respectively, are shown.

Compared with 1939, the year in which the war started in Europe, freight ton-miles in 1945 showed an increase of 103 per cent and passenger-miles increased 302 per cent. This traffic was handled with increases of only 3 per cent in the number of locomotives, 8 per cent in the number of freight cars, and 44 per cent in the number of employees. The number of passenger-train cars actually declined by 2 per cent.

Compared with pre-war years of peak traffic volume, such as 1929, 1920, and 1918, both freight and passenger traffic in 1945 showed very substantial increases, yet equipment ownership and employment showed very marked decreases.

Traffic increases on the railroads during the past five years were owing to both direct and indirect war causes. Early in the war period the Panama Canal was closed to commercial traffic and the freight normally handled by boats operating in intercoastal service shifted to inland rail routes. Most of the tankers that operate from Gulf to Atlantic ports, and supply the East Coast area with petroleum, were transferred to foreign duty early in 1942 and that traffic also was shifted to rail haul. Many general cargo vessels operating in coastwise service were also transferred to direct war uses. Shortages in tires and gasoline limited the amount of service performed by motor vehicles, particularly private passenger automobiles. These and other necessarily curtailed services by peacetime modes of transport added substantially to the war-swollen volume of goods and passengers on the railroads.

The war traffic pattern began to change shortly after VE-Day when some cutbacks in war production were made. However, from the standpoint of the railroads, this was largely offset by the long hauls involved in moving increased numbers of men and quantities of war goods to West Coast ports, as well as the start of the return movement of men from Europe. Further changes in the traffic pattern occurred following VJ-Day. Tankers were returned to Gulf-Atlantic and other routes, while gasoline rationing was lifted. On the other hand, heavy relief programs for inhabitants of war torn areas necessitated a considerable movement of goods to the ports, while the return of men from all war areas was speeded up. Many war influences will affect rail traffic in 1946, but to a diminishing degree.

RAILROAD EFFICIENCY

Railroad cars and trains were more heavily loaded during the war period than ever before. Cars and locomotives averaged more miles per day, while

PERFORMANCE AVERAGES
RAILWAYS OF CLASS I IN THE UNITED STATES

Year	Net Tons per Freight Train	Passengers per Train	Miles per Freight Car per Day	Net Ton-Miles per Freight Train Hour
1945*.............	1,140	188.9	50.5	17,674
1944.............	1,138	199.8	51.9	17,621
1943.............	1,116	189.5	51.0	16,997
1942.............	1,035	125.5	48.8	16,132
1941.............	915	73.2	43.7	14,930
1940.............	849	60.7	38.9	14,028
1939.............	813	58.0	36.4	13,450
1929.............	804	55.0	34.4	10,580
1920.............	708	82.5	27.0	7,303

* 10 months ended Oct. 31.

the output per hour of train operation reached a new high. Some of the outstanding performance averages are given in the foregoing table.

In achieving these record performance levels, the railroads received whole-hearted and understanding cooperation from shippers throughout the country, from the Army and the Navy, from the Office of Defense Transportation, from the Interstate Commerce Commission, and from other government agencies. Without such cooperation the biggest moving job in history could not have been done. Also, the traveling public generally accepted with good-natured understanding the crowded conditions on many passenger trains, recognizing that critical war materials could not be spared for construction of new passenger equipment and that a large part of existing equipment was in constant troop service.

FINANCIAL RESULTS

Railroad operating revenues during the war period reflected the great increases in traffic volume. To a lesser extent, net earnings also reflected such increases. Heavy tax accruals, as well as wage rate increases and higher prices paid for fuel, materials, and supplies, absorbed a considerable part of the larger gross.

The adjoining table shows the principal income account items over a period of years. The entries for 1945 apply to the 12-month period ended Oct. 31 of that year. Because of the difficulties in foreseeing tax and other adjustments in the last two months of the year, no attempt has been made here to estimate results for the year as a whole.

From the standpoint of net earnings, the year 1942 was the best of the war period. Notwithstanding further increases in operating revenues after 1942, which amounted to about $2,000,000,000, 1944 compared with 1942, net earnings declined in each year.

Compared with 1942, railway operating revenues in the 12-month period ended Oct. 31, 1945, increased 22.5 per cent, operating expenses increased 43.9 per cent, and taxes increased 14.8 per cent. On the other hand, net railway operating income declined 33.8 per cent, and net income after fixed charges decreased 35.8 per cent.

Railroads continued in 1945 to reduce outstanding indebtedness, as well as to reduce annual interest charges through refinancing at lower interest rates. In the five years ended with 1945, solvent railroads reduced outstanding funded debt by more than $1,000,000,000, while annual interest charges were reduced by more than $50,000,000.

Railroads spent in 1945 about $500,000,000 in gross capital expenditures for additions and betterments to properties. This compares with an expenditure of $560,112,000 in 1944. The decline was owing primarily to the

CONDENSED INCOME ACCOUNT
RAILWAYS OF CLASS I IN THE UNITED STATES

Year	Operating Revenues (Millions)	Operating Expenses (Millions)	Tax Accruals (Millions)	Net Railway Operating Income (Millions)	Net Income After Charges (Millions)
1945*............	$9,146	$6,620	$1,377	$ 983	$579
1944............	9,437	6,282	1,846	1,106	667
1943............	9,055	5,657	1,849	1,360	873
1942............	7,466	4,601	1,199	1,485	902
1941............	5,347	3,664	547	998	500
1940............	4,296	3,089	396	682	189
1939............	3,995	2,918	356	589	93
1929............	6,280	4,506	397	1,252	897

* 10 months ended Oct. 31, 1945.

installation of fewer new locomotives in 1945. In the first 10 months, 74 new steam and 448 new Diesel locomotives were installed in service by Class I railroads, compared with 287 new steam, 495 new Diesels, and one new electric locomotive in the same months of 1944. New freight cars installed in the first 10 months of 1945 numbered 33,696, compared with 30,832 in the same period of 1944.

CONCLUSION

As the year 1946 opens, a start has been made in the transition from war to peace activities. However, it is only a start and much remains to be done before the goal is achieved. Many millions of our people have been or will be sharply affected by the readjustment process.

The railroad industry has not yet completed its wartime assignments. Early returns indicate that the month of December, 1945, was the all-time peak in the handling of organized troop movements on the railroads, and the demobilization process will require another six months or so to complete. Likewise the movement of grain, other foodstuffs, and coal to the ports for shipment to devastated countries abroad has been heavy and will remain so until those countries again become self-sufficient for food and fuel.

On the other hand, railroads have already begun to prepare for the demands of peacetime traffic. Some new equipment has already been ordered, while plans for additional cars and locomotives are well advanced. The primary objective is to offer the most efficient, most complete, most attractive, and most economical services in the history of transportation.

HIGHWAYS

By Thomas H. MacDonald
Commissioner of Public Roads, Federal Works Agency

WAR AND POST-WAR DEVELOPMENTS

Development of plans for a $3,000,000,000 post-war highway program, to extend over a three-year period, held the spotlight in the highway construction field in 1945.

Suspension of the normal Federal-aid program during the war years had resulted in a sharp curtailment of highway activities. Men, materials, and machines were available only for projects urgently needed for war purposes. Improvement of highways in the vicinity of war industries and training areas and construction of access roads to sources of raw materials continued in substantial amount in 1945, but work of this type had passed its peak in the preceding year.

Wartime restrictions on road building operations were removed shortly after the end of hostilities, but approach of winter, readjustment from war conditions, and other factors prevented a general resumption of highway work immediately. In every state, however, steps were taken to get post-war projects under construction as quickly as possible. In many states, during the closing months of the year, contracts were let for highway and bridge work that had been deferred during the war years.

HIGHWAY PLANNING

Interest in planning a post-war highway program was strong at the beginning of the year, and planning activities were intensified as successes of the allied armies gave promise of an early cessation of fighting.

A large post-war highway program offered advantages beyond the transportation field by providing employment and stimulating business activity in the readjustment period. Since the industry of the country was wholly converted to war, the importance of developing plans for a highway program that would be ready for launching at the end of the war was generally recognized.

Passage of the Federal-Aid Highway Act of 1944 on Dec. 20 of that year prompted the states to prepare large programs for the improvement of urban highways, principal rural highways, and secondary roads, to be financed with Federal-aid and other highway funds.

The Federal-Aid Highway Act of 1944 established the pattern for the post-war highway program, specified the amount of Federal aid that would be made available, and removed all uncertainty as to the character and extent of the program.

Near the end of the year the states had completed plans for post-war highway projects estimated to cost $647,000,000. Plans for improvements to cost $2,500,000,000 were under way, and plans for additional work, extending over a period of years and calling for expenditures of $1,333,333,000, were contemplated.

These figures cover the total planning of state highway departments including Federal-aid projects. In the planning stages of a project it often happens that decision is not made as to whether Federal funds will be used to finance the cost of construction.

HIGHWAY LEGISLATION

Provisions of the Federal-Aid Highway Act of 1944 are based upon recommendations contained in the report of the National Interregional Highway Committee, which was submitted to the Congress by the President on Jan. 5, 1944, and the program of highway improvements advocated in the report "Toll Roads and Free Roads," which was prepared by the Public Roads Administration in 1939 after a detailed study of highway conditions throughout the country.

The act authorized a Federal appropriation of $500,000,000 to assist the states in making highway improvements in each of the first three post-war fiscal years. It provided that $225,000,000 should be appropriated for expenditure on rural and urban sections of the Federal-aid system; $150,000,000 for the improvement of farm-to-market roads and other secondary routes; and $125,000,000 for work on sections of the Federal-aid system in urban areas.

Conforming in effect to the recommendations of the National Interregional Highway Committee, the act required the designation of a National System of Interstate Highways not exceeding 40,000 miles in extent. The proposed system was to be selected by joint action of the state highway departments and the Public Roads Administration.

The act further provided that the new system, when designated, would become part of the Federal-aid highway system and consequently would be eligible for funds provided for improvements on both rural and urban sections of the latter system. No funds were earmarked solely for the development of the National Interstate System.

TENTATIVE MAPPING OF THE INTERSTATE SYSTEM

Funds for the first post-war fiscal year were apportioned on Jan. 6, 1945, and in February each state highway department was requested to proceed at once with the task of selecting routes recommended for inclusion in the National Interstate System. Attention was directed to the system recommended by the National Interregional Highway Committee but it was made clear that the Public Roads Administration intended in no way to limit the freedom of action of the states in selecting routes for tentative designation.

At the end of the year maps showing recommended routes had been submitted by all the states. In general, the recommendations coincided closely with the Interstate System proposed by the National Interregional Highway Committee. A different routing was proposed for some sections, and a number of additional routes across states were recommended. Total mileage recommended for inclusion in the system considerably exceeded the legal limitation of 40,000 miles.

In several instances the proposed

routes did not connect at the state line with a proposed route in the adjoining state. Under the provisions of the law it is necessary that each state highway department consider not only the internal needs of the state but also that it act jointly with highway departments of adjoining states to select a connected system.

After a detailed study by the Public Roads Administration, with particular reference to the probable service the proposed routes will render to industry, to the national defense, and to highway users in general, a tentative integration of the routes recommended by the states will be referred to the state highway departments for further consideration, with a view to eventual agreement on the National Interstate System as a whole.

The National Interstate Highway System being planned ultimately will connect all our large cities and densely populated industrial areas with broad, modern highways over which traffic will flow freely. It will pass directly through our largest cities on express routes. Access to express routes will be permitted only at selected points.

Circumferential and distribution routes within and around the larger cities also will be provided. The total mileage of these circumferential routes may aggregate several thousand miles, and this must be taken into account in selecting the system.

SECONDARY ROADS

The Federal-Aid Highway Act of 1944 authorized an appropriation of $150,000,000 for improvement of farm-to-market roads, mail and school-bus routes, and other secondary or "feeder" roads. The funds will be available for expenditure on a system of such roads selected by the highway department in each state, in cooperation with county supervisors or other appropriate local road officials and the Public Roads Administration.

The improvement of secondary roads was well advanced in many states and begun in others prior to the war. Under earlier legislation, Federal-aid secondary road systems or partial systems had been selected and approved for 35 states.

The new legislation requires that a system of Federal-aid secondary roads be selected in all states except the few in which all public roads and highways are under the control of the state highway department.

The objective of the legislation was to initiate a more comprehensive rural road program through the selection and improvement of a system of principal secondary roads to supplement the Federal-aid highway system in rural areas. Together, the two systems will form a closely integrated network of trunk routes and "feeder" roads.

No specific limit was placed upon the mileage of secondary road systems, but the states were urged to include only such mileage as could be adequately improved within a reasonable period of years and maintained with revenues that may be expected to accrue.

STANDARDS OF DESIGN

A statement of policy and procedure in designating secondary road systems was issued by the Public Roads Administration in May. Subsequently the standards to which secondary roads should be improved were the subject of careful study by all highway officials concerned, and appropriate recommendations for designing and constructing such roads were approved.

It is not necessary to build secondary roads to the high standards required by the large volumes of traffic on Federal-aid and state highways. It is necessary, however, that secondary roads be designed to give year-round service, and they must have sufficient durability to be maintained at reasonable cost.

No single type of construction meets these requirements in all situations. Traffic volumes, climatic conditions, and construction materials will vary greatly on different parts of the secondary road systems, but durable roads will be built.

Both the headquarters staff and the field organization of the Public Roads Administration cooperated actively with the states and their subdivisions in preparing for the post-war highway program. Data from the pre-war state highway planning surveys indicated the course to follow in rural highway work, but the absence of similar data for urban areas has been felt in developing solutions for city problems.

In most of the larger cities it has been necessary to bring together representatives of Federal, state, and city agencies interested in highway work, as well as representatives of adjacent areas not a part of the city, to agree on concerted action in developing plans for proposed improvements. The Public Roads Administration has assisted in the organizational steps, in the preparation of preliminary reports for public discussion to crystallize opinion as to an acceptable general plan, and in the preparation of detailed designs for adopted routes.

TRANSPORTATION STUDIES

Surveys of travel habits, using a new home-interview technique similar to the method employed in conducting public opinion polls, have been made in urban areas varying in size from 30,000 to nearly 2,000,000 population.

These studies of traffic origin and destination provide an accurate means of estimating the volume of traffic that will use any proposed route, thus indicating the urban routes that should be selected for improvement. They also serve to evaluate the merits of proposals advanced by different groups within an urban area, and to bring together the various local agencies in support of a single plan.

The Public Roads Administration has assisted in initiating and conducting comprehensive transportation studies, using the home-interview method, in 38 metropolitan areas. The field work in many of these surveys had been completed at the end of the year.

FEDERAL HIGHWAY ACTIVITY

During the fiscal year ended June 30, 1945, 4,011 miles of highways of all classes were completed, as compared with 5,695 miles in the preceding fiscal year and 12,936 miles in 1941. Nearly all the work was done with state cooperation. Completed highways consisted of 3,302 miles of access roads to war establishments of various kinds, 462 miles of roadway in the strategic network, and 247 miles of miscellaneous construction required by the war effort.

Twenty-one railroad crossings were eliminated, two obsolete structures were reconstructed, and 54 crossings were protected by signals or other devices. The total cost of all completed work was $111,062,750, of which $89,425,842 or 80 per cent was paid by the Federal Government. Approval of new projects fell to a new low level of 2,730 miles, as compared with 11,270 miles in the fiscal year 1941.

NATIONAL FORESTS AND PARKS

Construction of highways in national forests and parks was almost entirely suspended during the war years. A few roads of particular importance in reaching mineral deposits and timber needed for war purposes were improved, but generally the work was only that required for logging and ore-hauling operations.

Considerable work was done, however, on surveys, soil investigations, preparation of plans and specifications, and the development of a broad program of post-war improvements for which funds were authorized in the Federal-Aid Highway Act of 1944. This act authorizes an appropriation of $25,000,000 for the improvement of national forest highways, $4,250,000 for national park highways, and $10,000,000 for parkways, for each of the first three post-war fiscal years.

The Department of Agriculture appropriation bill for the fiscal year ending June 30, 1946, provides an appropriation of $1,500,000 for the maintenance and reconstruction of forest highways.

Plans and specifications have been prepared for projects that will absorb all national park and forest highway funds and funds for parkways for the first post-war fiscal year. Construction began in the spring of 1946.

INTER-AMERICAN HIGHWAY

Work on the 3,300-mile highway from the Texas border to Panama continued during the year, but only at a moderate pace. At the end of the year, 2,487 miles had a surface suitable for automobile travel at all seasons of the year, and 280 miles was passable in dry weather. Impassable gaps in Mexico, Honduras, Costa Rica, and Panama totaled 567 miles. The gap in Honduras is only eight miles long, and a bypass is in use.

An all-weather road exists from the United States border to a point about 50 miles south of Oaxaca, Mexico, a distance of 1,140 miles. From Oaxaca south, Mexico has pushed the improvement as fast as wartime conditions would permit, but travel to the southern border of Mexico is not yet possible.

Planning of the Inter-American Highway is an international undertaking, but each country through which it passes is in full control of financing and constructing sections within its borders. All work in Mexico has been done without outside assistance. Sections in other countries have been financed by the government of the country, with engineering assistance provided by the United States.

The United States has aided in financing some of the projects, and currently assistance is being provided from a $20,000,000 fund authorized by the Act of Dec. 26, 1941. Financial assistance from this country is limited to two-thirds of the cost.

PAN-AMERICAN HIGHWAY

This highway coincides with the Inter-American Highway to Panama and extends down the west coast of South America, across the Andes to Buenos Aires, and northward to Rio de Janeiro. The section from the Colombia-Panama border to Buenos Aires is 8,097 miles in length. Little has been done during the year in developing other sections of the Pan-American Highway, beyond local improvements. More extensive improvements will have to be made and gaps closed before tourist travel will be advisable. Near the end of the year, Ecuador awarded a contract for the construction of a difficult section through the Andes Mountains.

THE MOTOR BUS INDUSTRY

By Carl W. Stocks
Editor, *Bus Transportation*

GENERAL

Throughout the early part of 1945 the motor bus industry struggled on with the problems hanging over from the preceding war years. The selective service continued to draw heavily on the industry's manpower supply, while the supply of tires, replacement parts, and fuel continued to shrink owing to the growing needs of the armed forces which at that time were engaged in some of the severest fighting of the war. Buses were getting war worn, and constantly needed more attention in order to keep them in service, while new buses were in short supply and were under allocation by Office of Defense Transportation to those carriers that could prove absolute need in essential services.

Then came the end of hostilities which by no means took the pressure off the motor bus lines. The subsequent easing of controls was, however, a tremendous step forward, but even at the end of the year carriers were still hampered by shortages of materials and supplies. While new buses are rolling off the manufacturers' assembly lines in greater volume than for the past three years, the number was insufficient to meet the demand of the carriers for new and modern equipment.

TRAFFIC VOLUME FACTORS

While some decline in traffic occurred in the early months of the reconversion period, the continued shortage of automobile production, notwithstanding the end of gasoline rationing, had little effect on the volume of traffic handled for the full year of 1945. Only the city lines showed a decrease in traffic for the year; the city-suburban and the intercity carriers both showed a continued upward trend. Riding, therefore, continues on a high level with every prospect that that level will be maintained at least into the second quarter of 1946. So the bus industry as a whole goes into the new year with prospects substantially better than for industry as a whole, even though both are beset with labor demands for higher wages and a shorter work week. Some strikes have interrupted operations. Both city service and intercity carriers have been affected. No one section of the country has been strike free.

One of the most promising aspects of the industry for the last half of 1945 was the ability to secure a substantial number of new buses from manufacturers and prospects are good for further betterment in new equipment deliveries for the year 1946.

BUS PRODUCTION AND SUPPLY

Soon after the end of hostilities in Europe the bus manufacturers were given the "go-ahead" to build all the buses they could, but priority orders for deliveries as set up by ODT had to be filled before carriers not on the list could secure new equipment. Despite the fact that all manufacturers did not get their production under way fully before the end of the year, and the strike at General Motors, which made deliveries by them impossible during December, the bus industry absorbed 9,400 new buses and 225 new trolley buses for line haul service, and the schools themselves and the school bus contractors 8,200 more.

For the year 1945 the line haul carriers handled 9,742,000,000 passengers on buses and 894,000,000 on trolley buses. Of this total, the intercity motor bus carriers handled 1,092,000,000. Not all of the passengers on the intercity lines rode long distances, for during the war these carriers had built up a large commuter business and also a substantial volume to army camps and bases to which service was given. Local transport companies handled more than 9,500,000,000 revenue producing passengers during the year, exclusive of the riding on free transfers, passes, and in charter service.

To handle this immense volume of traffic, the intercity carriers had 31,250 buses and the local transport companies 50,625 buses and 3,169 trolley buses. These so-called common carrier buses rolled up 3,279,000,000 miles during the year. The local transport companies accounted for 1,605,000,000 miles by buses and 114,000,000 miles by trolley buses, while the buses of the intercity carriers rolled over 1,500,000,000 miles. It is impossible to further subdivide the operations as between line service and charter or off-route services, other than to state that they represent but a small percentage of the total, in as much as ODT restrictions were not lifted until the beginning of the fourth quarter of the year. Prior to that time no charter service outside of government work was permitted.

Based on information covering nine months operations for the year 1945, city companies now have 2.274 motor buses for each mile of line over which service is given. Those serving both city and suburban areas have 1.093 buses per mile of line, and trolley bus operations indicate an average of 3.325 vehicles per mile of line. The intercity carriers as a unit have one bus for each 14 miles of line. On the major lines, the intercity carriers are rolling up mileage at the rate of 76,000 bus miles per year, while in local transport service the rate is somewhat lower, being approximately 31,000 for the year.

OPERATING REVENUES AND COSTS

Operating revenues per bus mile are currently running higher than in any similar previous period, with intercity carriers taking in 43.87 cents per bus mile, while the city bus lines and the city-suburban operations range from 41.66 to 41.50 cents respectively.

While bus mile revenues are greater, operating costs also have shown a rapid rise, with the result that the ratio between operating costs and operating revenues is tending to go higher. This is to be the expected result from higher wages and higher material costs unless there can be an equivalent gain in operating revenues. For the nine months period, operating costs, exclusive of depreciation charges, taxes chargeable to operations, and rents were 27.08 cents per bus mile for city companies, 27.49 cents for city-suburban operations, and 22.84 cents for the intercity carriers. These higher operating costs when coupled with taxes, depreciation charges, and rents will indicate that net operating revenue is decreasing, and even though income taxes are less the net profit per bus owned from operation is less, except in the intercity group of carriers, than for the nine months period of 1944.

For the year 1945 it is estimated that operating revenue for the line haul bus companies, including charter or off-line service operated will be $1,220,000,000. This is the third consecutive year that the industry has had an operating revenue of more than $1,000,000,000. A breakdown of these figures credits $576,000,000 to the intercity carriers, and $644,500,000 to the local transport companies. In addition, the trolley bus operations had a revenue of $62,000,000. Net income for the bus companies after all taxes totaled $11,200,000 and was divided: $56,200,000 for the intercity group of carriers and $55,000,000 for those engaged in local transport service. Trolley bus operations enjoyed a profit of $10,000,000.

BUS PRODUCTION

Considering the many obstacles which had to be surmounted, the production of 18,450 buses of all types during 1945 was an achievement which came near equaling the highest bus production in the history of the industry. The largest total bus production ever reached in a single year was in 1939 when 19,655 vehicles were put into service. Classification of the production for 1945 shows 9,416 buses were absorbed by the common carrier services; 5,908 by the local transport companies and 3,508 by the intercity carriers. School buses totaled 8,225 units, and the armed forces received 799 units. Miscellaneous units and trailers total 10. In addition to these motor buses, 229 trolley buses were delivered during the year to carriers in the United States and 36 more exported to Canada and other countries.

It is interesting to note that the 9,416 common carrier bus production figure slightly exceeds the bogie of integral type units allocated to manufacturers by ODT for 1945 production. The ODT allotment for 1945 was for 9,413 integral type and 12,700 body or chassis type buses. Except for the 8,225 school buses, which were principally of the body-on-chassis type, the majority of vehicles built in 1945 were of the integral or unit construction type.

Buses built in 1945 were of larger average seating capacity—33.8 passengers—than those built in any previous year except 1942, when the average seating capacity was for 34.9 passengers. Intercity type vehicles in 1945 had an average seating capacity of 34.1, while city type buses had accommodations for 33.5 seated passengers.

SCHOOL BUS OPERATIONS

A survey of school bus operations for the school year 1944-1945 disclosed that, despite a decrease in the number of schools using buses, almost 300,000 more pupils were handled daily. The number of buses in school service is estimated at 80,000 over and above those used by line haul companies in this service. This is a gain of 5,000 buses for the year.

School buses now serve 40,000 schools, carry 4,700,000 pupils daily, and operate over 1,725,000 miles of route at a cost of $93,500,000 to the states. Direct comparison of costs for the school year 1945-1946 can be expected to increase by at least 7.7 per cent. Real need exists for many new buses to replace school buses now in service. The conditions under which school buses have had to operate during the last few years have taught the authorities a great deal about conserving the life of the vehicle. Moreover, the authorities responsible for school bus services have learned a great deal about reducing the service to essentials. One thing is certain, it is unlikely that in the future there will be any school bus service merely for convenience.

Again, on the constructive side, local officials, state school authorities, and others have all worked together more closely than ever before. In short, it may be said that operation of the school bus under wartime conditions has served to teach the school authorities a number of lessons that only the stress of war could be expected to bring to the surface. Lessons learned the hard way are not likely soon to be forgotten.

CHANGES IN OWNERSHIP

As in previous years there was a noticeable shift in ownership in the operating field, some of which was forced by the Securities and Exchange Commission. Mention can be made of the break-up of the city companies at Richmond, Norfolk, and Newport, Va., the sale at Portland, Ore., and at Dallas, Tex. In Chicago the city pushed its plan to acquire the Surface Lines and the Rapid Transit System, and initiated steps to acquire the Motor Coach Company for inclusion in the merger. Numerous new operations were started during the year in smaller cities, a trend that is likely to continue in the immediate future.

The intercity field has also seen many changes. The Interstate Commerce Commission has granted approval for the transfer of many certificates, some of which have been before the Commission for a considerable length of time. Complete statistics as to the number of transfers approved by the ICC and the different state regulatory bodies would indicate at least 100 transfers of ownership approved during the year.

AIR CONDITIONING

Air conditioning of vehicles used in city services was first introduced in 1945. Credit for the first installation goes to the company at Atlanta, Ga., where the first air-conditioned trolley bus was put into service in September. Soon after, San Antonio put an air-conditioned motor bus into service. Rider surveys have proved these installations highly popular, and plans are under way for expanding this type of service. The coming year will see marked progress in this popular innovation as new buses and trolley buses are put into service.

THE OUTLOOK

With every vestige of government wartime regulation eliminated the industry is again free to pursue its own decisions. The industry will spend millions of dollars for improvements including new equipment, new shops, and garages, new terminals, and rest stops for increasing the comfort and convenience of its passengers. Service will be improved through express runs both in local and intercity service all with the motive of reducing travel time.

Some slight measure of Federal tax relief is in prospect for bus companies during 1946 under the repeal of the excess profits tax, the elimination of the capital stock taxes, and the automobile use tax which applies to buses as well. Long term tax prospects are not too reassuring unless excise taxes on gasoline, rubber, and oil are modified downward. These are now under consideration by Congressional and Treasury experts and are subjects for hearings on the long term tax bill early in 1946. As matters stand, bus companies operate for the most part under fixed rates, and continuation of high taxes along with higher wage rates will increase the cost of service. Without compensating increases in revenue the industry will face the necessity of increasing its rates.

Already the municipal operations at

Detroit and San Francisco have raised fares to meet higher wages and to finance improvements. The city of New York is working on a plan to double the local sales tax in order to secure funds with which to rehabilitate and improve its municipally owned and operated transit system, which includes not only subways, but buses, trolley buses, and street cars.

Although labor problems are many and in some places critical, with strikes an inevitable step in the solution, this is but a part of Labor's program in its effort to secure higher take-home pay for a shorter work day. The bus industry is a fully regulated industry and its ability to pay is no secret. Since rates of fare must be approved before application by regulatory commissions, the proposal by Governor Edge of New Jersey for a Labor Arbitration Board is worthy of notice. However, it might be well to give the commissions that now fix passenger rates added responsibility in the matter of determining wages and working conditions, and so be able to control the whole cost of service for the public at large.

In 1946 some of the plans developed by the different carriers will approach realization. There will be further motorization of existing street railways systems and some expansion of trolley bus services. Management will strive for better public relations, and employee relations, likewise, will be one of the problems calling for continuing attention. Better places in which to work, better shop facilities, better garage layouts, and more efficient tools all can be expected to increase morale and productivity. Coupled with this is the matter of wages and hours of work.

Merchandising is another important subject. Goods can not be sold unless displayed. Bus services, too, must be on display, otherwise there can be no sale. More and faster service means more sales, consequently more riders, and in the end should result in better public relations if those who ride are treated in accordance with their expectations. Such modernization plans cost money and riding must be continued on a level to meet the cost of service of the kind the public wants.

Management never had so great an opportunity to provide modern transportation service. By comprehensive planning and evaluation of conditions in the locality served, carriers can revamp their systems of routes to provide more convenient and faster service. Through routings to eliminate transferring and express services between heavy loading points will give a new opportunity to gain new and additional traffic. Each carrier must evaluate his own future traffic and have plans by which it can be handled expeditiously.

Some conception of short-time trends in local traffic can be determined by evaluating the factors which have an effect on riding. These include: (a) employment in the territory served; (b) man hours worked; (c) department store dollar sales; (d) automobile registrations. To these four factors can be added long-time factors that to a large extent are within the control of the carrier and others in which the carrier has a major interest. Among these are: (a) modernization of the bus fleet; (b) type of employee selected for contact with the public; (c) employee training plans for efficient operations; (d) improved employer-employee relations; (e) better public relations; (f) number of new automobiles sold in the territory; (g) modern street traffic control systems; (h) restriction of automobile parking on transportation streets in bottleneck areas; (i) express bus service to outlying housing developments; and (j) crosstown routes to shorten time of travel in rush hours.

These are among the salient considerations in the situation at the beginning of 1946. It is, of course, true that some economic factors are at work over which the bus industry has no control, but the industry will advance to the extent that it intelligently and resourcefully continues to exert every effort to shape its own destiny.

COMMUNITY TRANSIT

By Guy C. Hecker
Executive Manager, American Transit Association

TRAFFIC VOLUME

The year 1945 saw what will probably be for many years to come the peak of community transit travel. The total of 23,017,000,000 rides registered in 1944 was topped by the 23,300,000,000 rides taken in 1945. In March 1945, 2,086,520,000 passengers were carried, the greatest number ever carried in a single month in transit history. All forms of community transit—street cars, motor buses, and trolley coaches—shared in the advance to new high levels in 1945. Rapid transit riding, which is confined to the largest metropolitan cities and which had decreased slightly in 1943, recovered in 1945 and established a new high record along with the other types of transportation. In the accompanying table the number of passengers carried in 1945 by each type of community transportation is shown together with the percentage change from 1944. In the same table there is also shown the number of vehicle miles operated and the operating revenues of each type of transportation with percentage changes from 1944.

TRANSIT OPERATIONS IN 1945

	Calendar Year 1945 Estimated (Millions)	Per Cent Change From 1944
Transit Passenger Traffic		
Surface Street Car..	9,585	+0.73
Rapid Transit......	2,673	+1.98
Trolley Coach......	1,249	+1.22
Motor Bus........	9,793	+1.52
Total.........	23,300	+1.23
Transit Vehicle Miles		
Surface Street Car..	948.6	−3.00
Rapid Transit......	452.3	−1.89
Trolley Coach......	131.6	−0.53
Motor Bus........	1,691.4	−1.28
Total.........	3,223.9	−1.85
Transit Revenues		
Surface Street Car..	$ 569.2	+1.26
Rapid Transit......	151.6	+2.78
Trolley Coach......	69.1	+2.37
Motor Bus........	594.4	+1.57
Total.........	$1,384.3	+1.61

In the following table indexes of community transit travel are shown for the years 1945 and 1944, the indexes being based on the average traffic for the five years 1936 to 1940 as 100. On this basis the 1945 index for community transit riding in the United States as a whole was 179.3. The table also shows indexes constructed on the same basis for the traffic in those groups of cities classified according to population.

1944-1945 TRANSIT TRAFFIC INDEX

(Av. 1936–40 = 100)

Population Group	1945 Index (Partially Estimated)	1944 Index
Cities Less Than 250,000.	273.2	270.0
Cities 250,000—1,000,000.	205.3	203.3
Cities Over 1,000,000....	132.1	130.9
United States—Total....	179.3	177.1

This grouping serves to bring out the fact that the largest increases in traffic during the war occurred in the smaller cities and the smallest increases in the larger cities. One reason for this was that war industries and military centers were frequently located in or near small cities and increased very materially the riding populations of those cities. A more general and more potent reason, however, was the fact that before the war a larger proportion of the population in the small cities depended upon private automobiles for daily transportation than in the large cities. The proportion tended to grade progressively downward as one went from the smallest to the largest cities. When gas rationing went into effect, therefore, a larger portion of the population had to transfer from private to public transportation in the small cities than in the large cities with consequently greater percentage increases in transit traffic in the former than in the latter.

POST-WAR DECLINE IN TRAFFIC

While traffic in 1945 exceeded 1944 it definitely passed through its peak in the former year. Allowing for seasonal variation the top was reached in July 1945. Thereafter traffic receded, and in the month of September it dropped below 1944. Each succeeding month to the end of 1945 continued below the corresponding month of the preceding year. The decline was gradual, however. The sharp drop which some in the industry thought might come with the end of the war did not occur. The largest decrease was registered in September which was 5 per cent below September 1944. In the succeeding months of 1945 the decline did not exceed 4 per cent. The decline in traffic that did occur in the closing months of 1945 can be attributed to the ending of gasoline rationing and to the reduction of employment in the war industry centers. It was stemmed in some measure by the ability of peacetime industry to absorb displaced war workers. Scarcity of new tires and the delays experienced by the automobile manufacturers in getting into production were also factors tending to keep transit riding from dropping off too rapidly.

RELAXATION OF TRANSIT CONTROLS

Wartime controls of community transit were relaxed with commendable speed after VJ-Day. Gasoline rationing was ended the day after the war in the Pacific stopped. ODT orders establishing the allocation of new vehicles according to war necessity, the requirement that all public carrier vehicles carry certificates of war necessity from the ODT, and the restrictions on new routes and route extensions were repealed by Sept. 1. Similarly, WPB controls on the production of new vehicles and on materials and parts were abolished by Sept. 30. On Oct. 30, the National War Labor Board ceased to control wage increases except where price increases were also involved. Within little more than a month, in fact, practically all government controls had been removed from the industry. One important exception was the rationing of tires which was not ended until Jan. 1, 1946.

The period of government controls had been a trying one. It was a new experience for transit to have its course of action prescribed for it so minutely and specifically as the war agencies did, particularly the ODT. There were many complicated situations to work out and many diverse interests to reconcile. ODT adopted an enlightened policy, however, and with all parties working for a common objective the problems presented did not prove insoluble. At the first general meeting of the American Transit Association after the war the industry took the occasion to "publicly acknowledge the outstanding contribution of the Office of Defense Transportation to the operation of the country's transportation systems during the war period," and to express a "lasting sense of gratitude" to the ODT staff "for the wise and intelligent administration of the difficult duties assigned to them throughout the entire course of the war."

DEVELOPMENT OF BUS SUBSTITUTION

Among the restrictions lifted by ODT shortly after the end of the war was the ban on the substitution of rubber-tired vehicles—motor buses and trolley coaches—for street railway cars, established in the interest of conserving gasoline and rubber. At the time the ban was established a number of companies had matured plans for replacing street cars with buses either throughout their entire systems or on selected routes. The

Third Avenue Railway System in New York, for instance, had actually taken delivery on the buses for a cross-town route in Manhattan when the ban was established and was required to relinquish the vehicles to another operator for a service more essential to the war.

With all restrictions removed, bus substitutions will be made in all of these cases as rapidly as the manufacture and delivery of the buses will permit. During the war interval, additional companies had decided on substitutions and now have their plans ready. There are, in fact, few cities with street railway systems in which some substitutions, either with motor buses or trolley coaches, are not under consideration. Some of the more important cities, in addition to New York, in which comprehensive plans have been announced are Chicago, Detroit, Los Angeles, Cleveland, Baltimore, St. Louis, Atlanta, and Buffalo.

SUBWAY PLANS FOR LARGER CITIES

On the other hand, intolerable traffic congestion on the streets of our large cities is leading to the development of community transit in another direction,—toward the construction of subways. This congestion has slowed down the speed of all surface vehicles in the business centers of our cities to the point where the value of public transit in those districts is being seriously impaired. Bus substitution offers no relief in this situation because it would increase the number of vehicles required and thus add to the congestion on the streets. The only practicable remedy would seem to be the construction of underground rapid transit rail lines which is being put forward as the solution in those cities large enough to support such projects. New York, Chicago, Philadelphia, and Boston already have subway systems, and Detroit, Cleveland, Montreal, and Toronto have well-advanced plans for subways under consideration. Washington, D. C. also is studying proposals for underground transit.

POST-WAR SERVICE

With the end of the war the primary problem of transit became how to provide a type of service that would attract to it permanently as large a proportion as possible of its war-induced traffic. It was the misfortune of transit to have its new war patrons experience transit service at its worst. Shortages of vehicles, of manpower, of tires, of spare parts disrupted schedules and produced such overcrowding of vehicles as had never before been known. Under government regulations and restrictions designed to conserve essential materials, the limited number of new transit vehicles produced were of a type in which only the essentials of mass transportation were considered and the comfort of the transportee ignored. Similarly, routes were prescribed and schedules constructed with an eye primarily to the conservation of materials and only secondarily to the convenience of patrons. Undoubtedly the service was efficient, but it was hardly calculated to win friends.

To remove the impression made on the public by wartime service, transit managers feel they must do more than restore peacetime standards of service. They are convinced they must improve on pre-war standards. Planning to this end was begun long before VJ-Day. Routes are now being surveyed to make sure that they are reaching all sections where service is required; rails and roadbeds are being renewed and improved, and operating personnel are being retrained in their duties and in courtesy to the public. Peacetime schedules have been restored and are now being further checked for present-day adequacy. Improvements are being made to the extent that available equipment permits. Finally and most important, new equipment of all types, street cars, trolley coaches and motor buses, is being ordered and placed in service as fast as it can be delivered. There will be delays, however, because new equipment can not be obtained as quickly as desired because of limitations of manufacturing capacities, scarcity of materials, and other causes.

EQUIPMENT

In the post-war plans for the rehabilitation of transit service and its further improvement the purchase of new equipment has the most important place. Quality rather than quantity is here the controlling factor. The vehicles that hauled the wartime traffic loads are undoubtedly adequate in numbers to handle the anticipated peacetime traffic, but they are decidedly not adequate in quality. The pre-war vehicles are now somewhat outmoded, and those built to the Spartan specifications prescribed in wartime have no permanent place in the plans for peacetime operations. Practically all of the wartime bus fleets and a substantial portion of the street cars are due for replacement with modern vehicles. Forward-looking managements set aside special funds from their wartime revenues for this purpose.

A great deal of thought and planning has been devoted to the design of these new vehicles. The specifications of the PCC street cars are being restudied and revised, and a lighter vehicle is expected to result, with even smoother running qualities than the original PCC car. The new buses are also being improved with special attention to the comfort of the passenger through new springing and smoother acceleration. More attention is also being given to adapting the design of the bus more closely to the special requirements of the route over which it is to operate. Experiments in air conditioning of transit vehicles already are taking place. Atlanta, Ga. is now operating an air conditioned trolley coach, and San Antonio, Tex. is experimenting with an air conditioned bus.

Shortages of materials and reconversion problems held down the production of new vehicles in 1945 despite the great number of orders that began to pile up after VJ-Day. Even the production quotas authorized under war conditions by the War Production Board at the beginning of the year were not attained. Important manufacturers converting from war work were unable to get into production before the end of the year. Others were able to complete only a small number of vehicles in the last few weeks of the year.

In spite of these handicaps the number of vehicles produced in 1945 exceeded the average in the years 1939-40 and, of course, greatly exceeded the production in the two mid-war years 1943 and 1944 when the limitations and restrictions were the severest. Only in the period just before war quotas were established was production greater.

Following is a comparison of transit equipment produced in the last seven years:

ANNUAL TRANSIT VEHICLE PRODUCTION

	1939–40 Average	1941	1942	1943	1944	1945
Street Car	444	522	344	32	284	408
Rapid Transit	77	0	0	0	0	0
Trolley Coach	484	417	336	117	55	225
Motor Bus	4,200	7,360	7,200	1,251	3,807	6,000
Total	5,205	8,299	7,880	1,400	4,146	6,633

LABOR RELATIONS

During the war wage rates rose to new high levels despite the Government's efforts to establish controls. As the Government stiffened its resistance to further increases and established a more definite policy for the stabilization of wage rates, union leaders sought additional "take-home" pay under the guise of more liberal working conditions and with considerable success. While the National War Labor Board and its several regional boards frowned on increases in basic wage rates beyond the "tested and going rates" established, they were willing to listen sympathetically to pleas involving the so-called "fringe issues," most of which, while not affecting the basic hourly rates, increased the take-home pay substantially.

During this period also the unions succeeded in having written into many contracts clauses providing that, if the stabilization policy of the Government were changed during the term of the contracts, the union would have the right to reopen the contract and demand a readjustment of wages in the light of the changed policy of the Government. When the war ended and the Government relaxed its wage controls this was construed as such a change in policy, and, accordingly, a number of such contracts were reopened and new wage demands presented. Some of these demands were adjusted satisfactorily and in others negotiations were still continuing as the year ended. In several cases, however, strikes were precipitated and others threatened at the year-end.

Future labor relations are a matter of serious concern to the industry. There is doubt whether the volume of transit traffic will support the present high level of wages when private automobiles again become freely available to all prospective purchasers. The resulting squeeze between labor cost and declining revenue will be a severe test of managerial skill and of labor statesmanship. Both sides are aware of the situation and, while viewing the problem from opposite sides, there is reasonable expectation that they may be able to agree on an approach that will produce an equitable solution.

FARES

A rather significant development at the end of 1945 was the announcement of the Department of Street Railways in Detroit that it would increase its rate of fare to 10 cents, effective Jan. 1, 1946. The conditions that led this municipal transit system to take such action are in a sense an exaggeration of conditions that are latent on other transit properties. Owing to the necessity of competing for manpower with the automobile manufacturing companies, transit wages in Detroit are the highest in the country. Nearly 70 per cent of the revenues of the Detroit transit system is absorbed by wages. When factories in Detroit began to let out employees at the end of the war transit traffic fell off, and those responsible for the operation of the system reached the conclusion that higher fares were a necessity if the system was to continue solvent.

Similar developments in other cities are a possibility of the future. Detroit was especially vulnerable because of its extraordinarily high labor costs and because, being at the center of war industries, its traffic was immediately affected by the let-down in war production when the war ended. Other transit systems may experience similar effects later.

Wartime standards of service can not be continued in peacetime. It has already been indicated that transit managers generally feel that pre-war standards of service will not be satisfactory to the public in the post-war years. Something better will have to be given, but costs have risen some 40 per cent over the pre-war levels. Under present-day costs the pre-war standard of service could not be given with the pre-war level of traffic and the present level of fares.

Undoubtedly a strong effort will be made to hold as much of the present traffic as possible and also to reduce the unit cost of service by greater operating efficiency. To the extent those measures are successful the necessity for higher fares will be reduced. If traffic drops off too fast, however, it is not expected that any increase in operating efficiency will be enough to offset it. Under such conditions the necessity of seeking increases in fares will become a distinct possibility for many companies. No more than other industries can transit meet post-war costs with a pre-war price level and a declining volume of business.

XIII. MANUFACTURES AND TRANSPORTATION

THE MERCHANT MARINE

By John Niedermair
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SHIPBUILDING

In view of the tremendous change of pace which took place in the production of ships during 1945, no month by month discussion of the shipbuilding record was considered essential in this review. Instead, a summary of the production record of the individual shipbuilding yards and their production during the war years is included for merchant ships of over 2,000 gross tons. Many merchant-type vessels under 2,000 gross tons each, self-propelled and non-propelled, were constructed by the Maritime Commission, the Navy, and the Army.

Of the 4,120 cargo ships shown in the accompanying table as being completed during the war years (1939-1945), up to Nov. 1, 1945, 2,648 were Liberty ships. The remainder were cargo ships of special design constructed for private interests and ships of the standard C-1A, C-1B, C-1M, C-2, C-3, C-4 types, Victory ships and oil tankers built for the Maritime Commission. The Pacific Coast yards completed 2,238 merchant ships as compared with the combined total of 2,776 ships completed by the yards on the Atlantic, Gulf, and Great Lakes combined.

While a total of 5.014 merchant ships were built during the war years, not all of these ships are now in the American Merchant Marine. Many have been sunk in war action, some were wrecked, and a large number were turned over to the Navy and Army for conversion into special auxiliary types such as ammunition ships, tank transports, airplane carriers, hospital ships, and naval tankers.

At the start of the war there were 1,321 merchant ships over 2,000 gross tons each, under the American flag, excluding the vessels on the Great Lakes.

POST-WAR PLANNING

After an extended period of investigation, the Post-war Planning Committee of the Maritime Commission submitted a report on Trade Routes to the shipping industry. The report covers the recommended foreign trade and estimated dry cargo ship requirements for the post-war operation of the United States Merchant Marine. It does not cover the offshore domestic trades which are protected by law from foreign flag competition. The routes have been grouped according to world areas and constitute seven basic divisions as follows:

ATLANTIC AREA POST-WAR TRADE ROUTES

The United Kingdom and Eire and the Atlantic Coast of Europe, including the Baltic.

Route 5—United States North Atlantic—United Kingdom and Eire; five passenger and/or freight services; 16 vessels.

Route 6—United States North Atlantic—Baltic-Scandinavian Europe; two passenger and/or freight services; 11 vessels.

Routes 7 and 8—United States North Atlantic—Antwerp-Hamburg range; three passenger and/or freight services; 13 vessels.

Route 9—United States North Atlantic — Atlantic France/Northern Spain; three passenger and/or freight services; 3 vessels.

Route 11—United States South Atlantic—United Kingdom/Continental Europe (north of Spanish border) Scandinavian and Baltic ports; two freight services; six vessels.

Route 21—United States Gulf to United Kingdom, Continental Europe (north of Spanish border) Scandinavian and Baltic ports; eight freight services; 34 vessels.

Route 26A—United States Pacific—

United Kingdom; one freight and one refrigerator service; 22 vessels.

Route 26B—United States Pacific—Havre-Hamburg range; one freight service; 13 vessels.

MEDITERRANEAN AREA

European and North African ports on the Mediterranean Sea.

Route 10—United States North Atlantic to Mediterranean, Black Sea, Portugal, Spain (south of Portugal), Morocco (Cassablanca to Tangiers); four passenger and/or freight services; 13 vessels.

Route 13—United States Gulf and South Atlantic to Azores, Portugal, Spanish Atlantic, Mediterranean and Black Sea ports; two freight services; seven vessels.

CARIBBEAN AREA

The West Indies; East Coasts of Mexico, Central America and the Canal Zone; the North Coast of South America as far as Brazil.

Route 3—United States Atlantic Ports to East Coast of Mexico; two passenger and/or freight services; five vessels.

Route 19A—United States Gulf to Cuba, Haiti, Dominican Republic, East Coast of Colombia, Panama Canal Zone; two freight services; six vessels.

Route 4—United States Atlantic ports to Caribbean, not including East Coast of Mexico, 46 vessels.

Route 19—United States Gulf ports to Caribbean, not including Route 19A; 24 vessels.

Route 23—United States Pacific ports to Caribbean; no recommendation as area is served by vessels which transit the Caribbean in process of serving other routes; direct service for area appears unnecessary.

AFRICAN AREA

The African Coast except that on the Mediterranean Sea.

Route 14—United States Atlantic and Gulf to West Coast of Africa (from southern border of French Morocco to Cape Frio) and the Madeira, Canary, Cape Verde, Fernando Po, Sao Thome, and other islands adjacent to the West African coast; one freight service; five vessels.

Route 15A—United States Atlantic ports to southeast African ports, Cape Guardafui and Madagascar; one freight service; 12 vessels.

Route 15B—United States Gulf ports to South and East African ports, Cape Frio to Cape Guardafui and Madagascar; one freight service; four vessels.

SOUTH AMERICAN AREA

Atlantic coast of South America—Brazil south; Pacific coasts of South America, Central America and Mexico.

Route 1—United States Atlantic ports to East Coast four passenger and/or freight services; 22 vessels.

Route 2—United States Atlantic to West Coast of South America—Chile, Peru, Ecuador and Pacific Coast of Colombia; two passenger and/or freight services; 14 vessels.

Route 20 & 24—United States Gulf ports to East Coast South America—Brazil, Uruguay, Argentina; two passenger and/or freight services; one freight service; 12 vessels.

Route 25—United States Pacific to West Coasts of Mexico, Central America and South America; one freight service; four vessels.

Route 31—United States Gulf to West Coast South America; one freight service; three vessels.

PACIFIC AREA

All countries bordering on the Persian Gulf and Red Sea.

Route 12—United States Atlantic to Far East; Philippine Islands, China, Japan, U.S.S.R., French Indo-China, Taiwan and Thailand; three freight services; 14 vessels.

Route 22—United States Gulf to Far East; Philippine Islands, China, Japan, U.S.S.R. in Asia, French Indo-China, Taiwan, Thailand; one freight service; 13 vessels.

Route 29—California to Far East; same countries as Route 22; two passenger and/or freight services; nine vessels.

Route 30—Washington and Oregon to Far East; same countries as

XIII. MANUFACTURES AND TRANSPORTATION

NUMBER OF STEEL MERCHANT VESSELS OVER 2,000 GROSS TONS CONSTRUCTED BY U. S. SHIPYARDS DURING 1939-1945

(Up To Nov. 1, 1945)

Shipyard	Type	1939–1941	1942	1943	1944	1945	Oct. 1945	Grand Totals
PACIFIC COAST YARDS								
Bethlehem-Alameda Alameda, Calif.	P	—	—	—	3	5	—	8
Bethlehem Steel San Francisco, Calif.	C	5	—	—	—	—	—	5
California S. B. Los Angeles, Calif.	C	—	109	166	86	76	6	467
	T	—	—	30	—	—	—	
Consolidated Steel Wilmington, Calif.	P	—	—	9	26	12	—	160
	C	3	5	39	19	47	5	
Kaiser Cargo, #4 Richmond, Calif.	C	—	—	—	10	17	—	27
Kaiser Co., #3 Richmond, Calif.	P	—	—	4	14	14	2	32
Kaiser Company Swan Island, Ore.	T	—	1	43	64	37	3	145
Kaiser Company Vancouver, Wash.	C	—	2	8	30	12	4	52
Marinship Corp. Sausalito, Calif.	C	—	—	10	—	—	—	88
	T	—	—	5	44	29	3	
Moore Dry Dock Co. San Francisco, Calif.	P	—	3	—	—	—	—	90
	C	4	—	28	35	20	—	
Oregon Shipbldg. Corp., Portland, Ore.	C	1	113	197	73	66	4	450
Permanente Metals Corp., Calif. Yd. #1	C	5	55	92	40	29	—	221
Permanente Metals Corp., Calif. Yd. #2	C	—	63	187	123	67	—	440
Seattle-Tacoma S. B. Corp., Tacoma, Wash.	P	—	2	—	—	—	—	8
	C	5	1	—	—	—	—	
Western Pipe & Steel Co., San Francisco, Calif.	C	5	4	18	12	6	—	45
Total		28	363	836	576	437	27	2238
ATLANTIC COAST YARDS								
Bath Iron Works Corp., Bath, Maine	C	3	1	—	—	—	—	4
Bethlehem-Fairfield, Baltimore, Md.	C	1	77	192	130	78	7	478
Bethlehem-Sparrows Pt. Shipyard, Md.	P	3	3	—	—	—	—	
	C	11	—	4	5	4	2	95
	T	13	13	20	10	9	—	
Bethlehem Steel Corp., Quincy, Mass.	P	3	—	—	—	—	—	
	C	7	1	—	—	—	—	20
	T	6	3	—	—	—	—	
Bethlehem Steel Corp., Staten Island, N. Y.	C	5	—	—	—	—	—	5
Cargill, Inc., Albany, N. Y.	T	1	—	—	—	—	—	1
Dolomite Corp., Rochester, N. Y.	T	1	—	—	—	—	—	1
Federal S. B. & D. D. Co., Kearny, N. J.	P	—	—	4	5	2	—	
	C	23	11	11	8	10	1	84
	T	8	2	—	—	—	—	
J. A. Jones Construction Co., Brunswick, Ga.	C	—	—	21	53	23	3	97
John H. Mathis Co., Camden, N. J.	C	1	—	—	—	—	—	1
New England S. B. Corp., Me., West Yd.	C	—	12	40	47	12	—	111
New England S. B. Corp., Me., East Yd.	C	—	32	51	53	27	3	163

Shipyard	Type	1939–1941	1942	1943	1944	1945	Oct. 1945	Grand Totals
ATLANTIC COAST YARDS								
Newport News S. B. & D. D. Co., Va.	P	8	—	—	—	—	—	18
	C	7	—	—	—	—	—	
	T	3	—	—	—	—	—	
North Carolina S. B. Co., Wilmington, N. C.	C	—	51	79	60	38	3	228
Pusey & Jones Corp., Wilmington, Del.	C	—	5	6	6	2	—	19
Southeastern S. B. Co., Savannah, Ga.	C	—	—	36	44	16	3	96
St. John's River S. B. Co., Jacksonville, Fla.	C	—	—	25	51	6	—	86
	T	—	—	—	—	4	—	
Sun S. B. & D. D. Co., Chester, Pa.	P	4	—	—	—	—	—	290
	C	14	6	1	12	7	—	
	T	20	40	72	69	45	5	
Walsh-Kaiser Co., Providence, R. I.	C	—	—	6	15	22	—	43
Welding Shipyards, Norfolk, Va.	T	1	2	3	4	3	1	13
Total		143	259	571	572	308	28	1853
GULF COAST YARDS								
Alabama D. D. & S. B. Co., Mobile, Ala.	C	—	18	2	—	—	—	124
	T	2	—	24	44	34	4	
Delta S. B. Co., New Orleans, La.	C	—	28	35	60	33	2	188
	T	—	—	27	5	—	—	
Gulf Shipbldg. Corp., Mobile, Ala.	C	—	4	10	7	9	—	30
Todd Houston Shipbldg. Co. Houston, Texas	C	—	32	74	83	19	—	217
	T	—	—	—	—	9	4	
Ingalls Shipbldg. Corp. Pascagoula, Miss.	P	1	3	3	—	—	—	65
	C	4	2	17	15	20	1	
J. A. Jones Construc. Co. Panama City, Fla.	C	—	—	21	53	28	1	105
	T	—	—	—	—	3	1	
Pennsylvania Shipyards, Beaumont, Tex.	C	1	10	18	20	32	3	81
Tampa S. B. & D. D. Tampa, Fla.	C	2	—	—	—	—	—	2
Total		10	97	231	287	187	16	812
GREAT LAKES YARDS								
American Shipbldg. Co., Cleveland and Lorain, Ohio	C	—	2	6	—	—	—	8
Barnes-Duluth S. B. Co., Duluth, Minn.	T	—	—	7	—	—	—	7
Froemming Bros., Milwaukee, Wis.	C	—	—	—	5	9	1	14
Globe Shipbldg. Co., Superior, Wis.	C	—	—	—	5	5	—	10
Great Lakes Engr. Works, Michigan and Ohio	C	—	3	10	—	—	—	13
L. D. Smith S. B. Co., Sturgeon Bay, Wis.	C	—	—	—	5	12	1	17
W. Butler Shipbldg. Duluth, Minn.	C	—	—	—	6	12	—	18
W. Butler Shipbldrs. Superior, Wis.	C	—	—	—	7	15	—	22
Total		—	5	23	28	53	2	109
Grand Total—All Yards		181	724	1661	1463	985	73	5014

Route 22; two freight services; 12 vessels.

Route 28—United States Pacific to Straits Settlements, Netherlands East Indies, India, Persian Gulf, Red Sea; trade to be carried in part of the vessels operating on Route 17 and the round-the-world vessels.

Route 18—United States Atlantic and Gulf to India, Persian Gulf and Red Sea; three freight services; 14 vessels.

Route 17—United States Atlantic and Gulf to Straits Settlements and Netherlands East Indies; four freight services; 17 vessels.

Route 27—United States Pacific to Australasia (Australia, New Zealand, New Guinea, and South Sea Islands); two passenger and/or freight services; five vessels.

Route 16—United States Atlantic and Gulf to same countries as on Route 27; four freight services; nine vessels.

ROUND THE WORLD

A passenger and freight service; seven vessels.

REPORT OF SUBCOMMITTEE ON TRADE ROUTES

The Subcommittee on Trade Routes pointed out that the foregoing listed routes and services have been considered from the standpoint of essentiality and in their opinion the specified routes and services are important to the maintenance, promotion and development of the foreign commerce of the United States, and that they should be characterized as "essential."

Each of the routes had been investigated as to volume and character of traffic, and the foreign flag competition to be met. Part of the basis of the investigation seems to have been the dry cargo traffic movements for the year 1938, although, when abnormal factors were found to have existed in other years, allowance for this was estimated in order to arrive at what may be termed a representative year. The committee then reviewed the "known and anticipated factors—both political and economic—which are expected to affect the post-war volume and character of trade." Next, and most important to note, the committee stated that "on the basis of this an estimated tonnage target has been selected to be used as a guide in the planning of United States flag services." They stated that "this tonnage target has been set at 50 per cent of the traffic which liners could reasonably expect to carry, or that share of the trade which American flag services actually carried before the war—whichever was the larger."

In considering the potential competition to be met, the committee assumed that German and Japanese shipping will not be resumed on any important scale, if at all, and declared: "Where such services were of any great value in serving the foreign trade of the United States, the establishment of United States flag services to replace them has been recommended."

The committee reported that "the principal competition in the United States foreign trades will come from the British, Scandinavians, and Dutch, with some of the American republics playing an increasingly important role in the Western Hemisphere trades, notably Brazil, Argentina and Chile, with limited competition also probable from the French and other European Nationals." The committee then made the pessimistic contention that "where this competition is encountered, it may be difficult for American flag vessels to get a full share." Also: "Serious competition may also be expected from United States companies which operate foreign flag chartered tonnage. Most of the cut-rate competition which from time to time has proven so injurious to the United States flag merchant marine has come from such companies. This type of competition will probably be resumed once tonnage becomes available for charter and the rates go down."

Noted elsewhere in the report is the statement that the desired result is adequate American flag participation in the carriage of the foreign trade of the United States. The committee pointed out that "before the war American flag participation in the transportation of passengers and traffic was inadequate on most foreign trade routes due largely to deficiencies in service and equipment. The services suggested in the report are in general superior to the American flag services offered before the war."

ANALYSIS OF THE REPORT

From the physical aspect and overall viewpoint, the actual set-up of the trade routes and services proposed appear to be excellent and an improvement in coverage over what existed pre-war. It may be, however, that operators who have had experience on certain of these routes in the past will be able to point out modifications which should still further increase the coverage and perhaps enhance the volume. As a matter of fact, a very conservative and safe program seems to have been the main thought of the committee and the recommendations of the late President Roosevelt for a "bold and daring" plan have been ignored; at least, if we can interpret the recommendation to mean the securing of additional foreign trade and shipping services, as well as the building of a fleet of express combination passenger and cargo liners.

From the detailed information provided in the report, an analysis has been prepared by the *Marine Engineering and Shipping Review*, covering the number, tonnage, and type of vessels which would be required in each of the seven geographical trade areas, together with the total maximum yearly sailings and the total deadweight tonnage which would be employed over the span of one year. This is shown in Table 1.

By reference to the summary in Table 2 it will be noted that the committee's recommendations contemplate the employment in foreign trade yearly of 395 American flag vessels with a total deadweight tonnage of 3,778,120 tons, or approximately 3,400,000 tons cargo capacity. The maximum yearly sailings contemplated are 1,981, which would provide a yearly vessel deadweight tonnage of 20,107,060 tons, or approximately 18,000,000 tons cargo capacity, on the 34 trade routes and 75 shipping services. From the committee's report it has also been possible to compile Table 3 showing the total number and deadweight tonnage of each type of vessel proposed to be used on these trade routes.

It would appear that the committee has made very little provision for capturing the theoretical 50 per cent of our foreign waterborne commerce, as the fleet proposed, with a deadweight tonnage of 3,778,120 tons, is only 15 per cent greater in carrying capacity than the United States flag foreign trade fleet of 1938 which was slightly over 3,300,000 deadweight tons, and which moved only 26 per cent of the dry cargo imports and exports of the United States, or 11,637,000 tons.

By reference to Table 4 it will be noted that American flag ship operators were able to employ in foreign trade in one year (1939) as many as 551 vessels of about 4,500,000 deadweight tons. This figure represents the maximum employment attained of American tonnage in foreign trade in any one year between the First World War and the Second World War. While this trade fleet was of lower average speed than the proposed post-war American flag foreign trade fleet, it did succeed in moving 19,442,000 tons of cargo, which is 1,000,000 tons more than the yearly cargo capacity of the proposed new fleet with the scheduled sailings as outlined. In that year, only 32 per cent of the United States imports and exports was carried in American bottoms.

If American salesmanship was able to sell shipping services, passenger and freight, to this extent in the past, the question arises why should 1938 results be used as a basis, or a limiting factor such as 50 per cent of the traffic be placed upon American initiative?

In 1938 a total of 18,200,000 deadweight tons of foreign flag and Ameri-

XIII. MANUFACTURES AND TRANSPORTATION

TABLE I

ANALYSIS OF VESSELS REQUIRED ON TRADE ROUTES PROPOSED FOR AMERICAN FLAG FOREIGN SERVICES

Type	No.	D. W. T.	Maximum Yearly Sailings	Total Yearly D. W. T.
Mediterranean Area 2 trade routes—6 passenger and freight services				
Special pass. and cargo	4	49,520	52	643,760
C-3 cargo	9	108,000	42	624,000
C-2 cargo	7	63,000	36	324,000
Totals	20	220,520	140	1,591,760
Atlantic Area 9 trade routes—26 passenger and freight services				
Special pass. and cargo	3	37,200	52	644,800
C-3 pass. and cargo	15	135,000	182	1,638,000
C-3 cargo	8	96,000	52	624,000
C-2 cargo	59	531,000	338	3,042,000
C1-B cargo	24	216,000	158	1,422,000
Refrigerated	9	72,000	52	416,000
Totals	118	1,087,200	834	7,786,800
African Area 3 trade routes—3 freight services				
C-3 cargo	6	72,000	24	288,000
C-2 cargo	10	90,000	36	324,000
C1-A cargo	5	37,000	24	177,600
Totals	21	199,000	84	789,600
Round-the-World 1 trade route—1 passenger and freight service				
C-3 pass. and cargo	7	63,000	26	234,000
Totals	7	63,000	26	234,000
South American Area 6 trade routes—11 passenger and freight services				
Special pass. and cargo	4	35,000	52	455,000
C-3 pass. and cargo	4	36,000	26	234,000
C-2 pass. and cargo	6	60,000	52	520,000
C-3 cargo	13	156,000	64	768,000
C-2 cargo	16	155,000	90	810,000
C1-A cargo	4	29,000	24	177,600
C5-ore carrier	8	194,400	72	1,749,600
Totals	55	655,400	380	4,714,200

Type	No.	D. W. T.	Maximum Yearly Sailings	Total Yearly D. W. T.
PACIFIC AREA 9 trade routes—22 passenger and freight services				
Special pass. and cargo	2	26,000	13	169,000
P2 pass. and cargo	4	48,000	26	312,000
AP-2 Victory cargo	12	121,200	60	606,000
AP-3 Victory cargo	3	30,300	13	131,300
C-3 cargo	60	720,000	215	2,580,000
C-2 cargo	9	81,000	26	234,000
C1-A cargo	3	22,200	10	74,000
Totals	93	1,048,700	363	4,106,300
CARIBBEAN AREA 4 trade routes—6 passenger and freight services				
Special pass. and cargo	3	18,000	52	312,000
Special types—pass., refrig., etc.	47	275,700	?	?
AP-3 Victory cargo	3	30,200	?	?
C1-A cargo	2	14,800	26	192,400
C1-A cargo	3	22,200	?	?
C1-B cargo	2	18,800	?	?
C-2 cargo	5	45,000	?	?
C1-M cargo	6	30,000	76	380,000
C1-M cargo	10	50,000	?	?
Totals	81	504,700	154	884,400

can flag tonnage was employed in the American passenger and cargo waterborne foreign commerce, a fleet more than 4½ times the size of the proposed American flag post-war foreign trade fleet.

With a yearly cargo-carrying capacity of about 18,000,000 tons provided for on 1,981 maximum number of sailings, it would seem that the committee has not aimed high enough, as the total oceanborne dry cargo moved in American commerce in 1938 was slightly over 44,000,000 tons, or 2½ times the capacity of the fleet provided for in the report. This traffic has ranged as high as 75,300,000 tons in the years between the two wars, or four times the capacity of the post-war foreign trade fleet proposed.

Allowing for dislocation of world trade as it existed pre-war, and having in mind that the Administration at Washington is endeavoring to increase imports and exports, the carriage of 50 per cent of American foreign commerce would seem to necessitate the provision of a larger fleet.

Before the war, Germany, Japan and Italy controlled 13,000,000 deadweight tons of passenger and cargo carrying vessels. Far more than 50 per cent of this tonnage was destroyed during the war. A large percentage of this tonnage was employed pre-war in the American foreign trade, and in the case of the latter two nations shipping services sold to other nations kept at least 20 per cent of their fleets occupied. While the committee does mention the former German and Japanese shipping, no mention is made of the lost Italian merchant vessels. Evidently little consideration was given to the services maintained by the Axis powers to other parts of the world than the United States, and these routes are therefore supposedly to be left to other nationals to service. Great Britain and Norway have never hesitated about operating shipping services between other nations than their homeland; for example, the British flag Furness Prince Line operated for years before the war between New York and South America.

While the Trade Routes Committee has characterized these 34 trade routes and 75 shipping services as "essential," it can not be assumed that the Maritime Commission would certify these routes as "essential" and award an operating-differential subsidy to the proposed 395 vessels to be employed in foreign trade, unless foreign flag competition should develop on each trade route. The number of vessels receiving an operating-differential subsidy each year since the enactment of the Merchant Marine Act of 1936 has been less than one-half the number in the proposed new fleet. The numbers subsidized each year were as follows:

July 1, 1937	154 vessels
December 31, 1938	126 vessels
September 30, 1939	141 vessels
June 30, 1940	129 vessels
December 31, 1940	139 vessels
June 30, 1941	132 vessels

The number of ship operating companies receiving an operating-differential subsidy each year and the total number of vessels owned by these companies follow:

Year	Number of Companies	Number of Vessels Owned at End of Each Year
1938	16	177
1939	13	161
1940	12	138
1941	12	137

THE LONG-RANGE SHIPBUILDING PROGRAM

On Sept. 18, 1945 it was disclosed that the Maritime Commission officials had been conferring with the Budget Bureau on the 1947 fiscal year shipbuilding contract authorizations which called for the construction of 75 ships, including 11P-4 type passenger liners. At the same time it was disclosed that the Commission's wartime program, which called for 5,678 ships, was 95 per cent completed on Sept. 15 with 344 ships, including 44, under private contracts, remaining to be delivered in 1945 and 1946. Of the 35 shipyards still engaged in this program, only 12 yards have contracts carrying them into 1946. The 1945-1946 contracts call for deliveries totaling 250 during the balance of 1945 and 84 in 1946. Of 60 keels to be laid down after Sept. 15, 23 are scheduled to be laid down in 1946.

RADAR AS SAFETY EQUIPMENT FOR PASSENGER SHIPS

With the conclusion of the war, various wartime developments of interest to the maritime industry can now be disclosed. These developments are the result of experiments, investigation into the operation of the equipment under actual service conditions, and practical applications of equipment. Of these, the most important piece of equipment contributed by the war effort, from the standpoint of safety, is radar. Long before the secrets of radar were released to the public in 1945, its application as a safety feature on merchant ships had been realized by the Navy and Coast Guard by reason of their association and reliance on this equipment. This remarkable technological achievement, conceived long before the war, but brought to practical success only by the impact of war, promises to be one of the most important single safety features ever put to use on merchant ships. As time goes by, radar screens on the bridges of ships can be expected to be as common as the gyro-compass.

Radar was developed primarily as an instrument to be used for detecting and ranging in warfare. Since radar is able to detect land, vessels, buoys, and other objects above the water within range of the equipment, it has demonstrated its usefulness as an aid to navigation when making landfalls, as a warning device to prevent collision at sea, and as a means of piloting when entering port in fog or poor visibility. The basic principle of radar—the name comes from

TABLE 2

SUMMARY OF VESSELS REQUIRED ON TRADE ROUTES PROPOSED FOR AMERICAN FLAG FOREIGN SERVICES

	No.	D. W. T.	Maximum Yearly Sailings	Total Yearly D. W. T.	Trade Routes	Services
Mediterranean Area	20	220,520	140	1,591,760	2	6
Atlantic Area	118	1,087,200	834	7,786,800	9	26
African Area	21	199,000	84	789,600	3	3
South American Area	55	655,000	380	4,714,200	6	11
Pacific Area	93	1,048,700	363	4,106,300	9	22
Caribbean Area	81	504,700	154	884,400	4	6
Round-the-World Area	7	63,000	26	234,000	1	1
Totals	395	3,778,120	1981	20,107,060	34	75

"Radio Detection and Ranging"—is not a difficult one. The discovery which led to the actual development of radar was made in 1922 by two scientists working at the Naval Aircraft Radio Laboratory, Anacostia, Maryland. Testing plane-to-ground communications they noticed that ships moving in the Potomac River distorted the pattern of radio waves, causing a fluctuating signal. From this discovery, development was pursued almost continually after that until 1935, when Congress awarded a $100,000 appropriation to the Naval Research Laboratory for the specific development of radar. A rather crude radar was tested successfully in 1937 aboard the *USS Leary*, and a greatly improved one was given extensive sea trials on the *USS New York* in 1939. Before that, experimental work conducted from the ground, employed a variety of ships and aircraft and the dirigible *Akron*.

TABLE 3

TYPE, NUMBER, AND DEADWEIGHT TONNAGE OF VESSELS PROPOSED FOR AMERICAN FLAG FOREIGN TRADE ROUTES

Type	No.	D. W. T.
Special pass. & cargo	16	164,720
P-2 pass. & cargo	4	48,000
C-3 pass. & cargo	26	234,000
C-2 pass. & cargo	6	60,000
Special types—Caribbean	47	275,700
AP-2 Victory cargo	12	121,200
AP-3 Victory cargo	6	60,000
C-3 cargo	96	1,152,000
C-2 cargo	106	954,000
C1-A cargo	17	125,800
C1-B cargo	26	234,800
C1-M cargo	16	80,000
C-5 ore carriers	8	194,400
Refrigerated	9	72,000
Totals	395	3,778,120

The typical radar set, as it is known today, consists of a receiver and transmitter in the same place and often employing a common antenna. The transmitter sends out energy in very small bursts called "pulses." These bursts of ultra high frequency waves travel at the speed of light, 186,000 miles a second. After each pulse, the transmitter waits a relatively long time—a few thousandths of a second—before sending the next pulse. During this interval the receiver gets back the echoes of the pulses from any object which might have obstructed the wave of energy, the echo being known as a "pip." The "pip" is recorded as an interrupting rising and falling line on the pulsing line ("time base") on the face of a cathode ray tube. Direction is obtained by providing the radar with a directional antenna which sends out the pulses in a narrow beam, like a searchlight. The antenna may be rotated as the pulses are sent out, and the "pip" occurs when the antenna points at a target. The distinct advantages of radar are: 1. it is the best anti-collision device yet perfected; 2. it makes for greater safety while piloting or making landfalls during periods of low visibility; 3. it indicates continuous instantaneous accurate ranges and bearing of objects; 4. it presents a chart-like picture of the surroundings, the presentation being in the nature of a polar chart with you at the center; and 5. by observation of the scope, movements of objects are indicated.

The Coast Guard, by reason of its experience with radar and in an effort to aid the merchant marine in the selection of suitable equipment, has assumed, with the approval of the Chief of Naval Operations, the responsibility of determining the minimum requirements of radar apparatus for installation aboard merchant ships.

TABLE 4

NUMBER AND GROSS TONNAGE OF AMERICAN FLAG MERCHANT VESSELS OF 1000 GROSS TONS AND OVER EMPLOYED EACH YEAR IN THE FOREIGN DRY CARGO TRADES OF THE UNITED STATES, EXCLUDING VESSELS ON THE GREAT LAKES

(As of June 30, 1945)

Year	Combination		Cargo		Totals	
	No.	Gross Tons	No.	Gross Tons	No.	Gross Tons
1923	85	744,618	444	2,290,291	529	3,034,909
1924	78	680,493	421	2,237,039	499	2,917,532
1925	72	646,154	398	2,114,367	470	2,760,521
1926	73	642,807	395	2,090,323	468	2,733,130
1927	70	642,787	456	2,372,568	526	3,015,355
1928	74	681,129	421	2,237,097	495	2,918,226
1929	85	740,270	466	2,492,348	551	3,232,618
1930	98	816,136	413	2,225,792	511	3,041,928
1931	95	826,926	351	1,875,318	446	2,702,244
1932	100	869,021	247	1,316,875	347	2,185,896
1933	107	903,089	242	1,281,146	349	2,184,235
1934	111	950,971	258	1,380,897	369	2,331,868
1935	108	887,795	253	1,345,942	361	2,233,737
1936	104	865,424	250	1,333,110	354	2,198,534
1937	99	849,076	275	1,462,418	375	2,311,494
1938	76	651,654	213	1,154,944	289	1,806,598
1939	78	703,184	193	1,037,627	271	1,740,811
1940	66	609,821	291	1,586,778	357	2,196,599
1941	43	410,118	358	1,932,074	401	2,342,192

COMMERCIAL AVIATION

By ANDREW F. HAIDUCK

VICE PRESIDENT, BELLANCA AIRCRAFT CORPORATION

GENERAL

The rapidly changing scene in 1945, culminating in V-J Day, had in general salutary effects on the various phases of commercial aviation. Revenue miles flown increased 51.9 per cent over 1944, reaching an all-time high of 219,169,450. Passenger miles showed a 54 per cent increase. Redeployment, as well as demobilization, helped to keep the load factor at 88.76 per cent, somewhat less than the 90.16 figure for 1944.

Revenue passengers totaled 6,621,842, a 44.7 per cent increase. At the end of the year, there were still insufficient seats to handle all of the traffic, particularly since the Army and Navy reserved 70 per cent of the eastbound space for returning veterans. Converted C-54s were making their appearance on the airline networks toward the end of the year. However, most of the airlines had also contracted for new planes to be delivered in 1947 with projected schedules at that time of eight hours from Los Angeles to New York.

Air mail-ton miles also registered a substantial gain with a 41.8 per cent increase for the year's operations. Actually, air mail service has doubled in the last two years, and the Post Office is now making money on air mail operations.

Air Express ton miles climbed to 24,505,243, a 42.8 per cent increase over 1944. Also a 13 per cent reduction in rates was instituted by the 19 domestic operators at the end of the year.

Passenger fares were reduced to 4½ cents per mile, a reduction of 17.8 per cent over the 1944 rate. Passenger revenue continues to be approximately 72.5 per cent of the total with mail yielding 21 per cent and express 5 per cent.

The number of airports continued to increase, but the National Airport Plan was still bogged down in Congress. The situation was somewhat obscured by the problem of approximately 700 surplus airports.

Manufacture of new civil aircraft was in the stage of reconversion with deliveries scheduled to start in quantity in early spring. Considerable modification of war models of C-54's was in process at the end of the year, and it is expected that a total of 1,000 airplanes will be converted to airline usage. Personal aircraft manufacturers had approximately 50,000 orders on their books, an unprecedented figure. Its magnitude can best be gauged by the fact that the greatest number of civil planes produced in any one year did not reach 7,000.

Research was recognized by all as of paramount importance in view of the many phases that were revealed to the public after V-J Day. Radar, jet propulsion rocket ships, guided missiles, new materials, all these lent a somewhat Buck Rogers aspect to this side of the picture.

SCHEDULED AIR TRANSPORTATION MILEAGE

Domestic revenue miles flown in 1945 were estimated at 219,169,450, a 51.9 per cent increase over the figure of 144,240,440 miles in 1944. The estimated total is derived from the sum of actual operations for the first ten months of the year and an estimate of the last two months operations. Revenue passenger miles for the year, estimated on the same basis, totaled 3,525,619,866 as compared with 2,243,425,630 miles for 1944, an increase of 54 per cent. The end of hostilities in the European theater and the subsequent redeployment to the Pacific put an unprecedented westbound load on the airlines which was exceeded only by the eastbound load imposed after V-J Day by the transportation of returning soldiers and sailors.

Approximately 32,000,000 revenue miles and 493,000,000 revenue passenger miles were chalked up by approximately 100 airplanes in the overseas operation. In the regular transatlantic services, the Air Transport Command utilized the services of the four largest domestic airline operators, *i.e.* Transcontinental and Western Air, American Airlines, Pan American Airways, and American Export Lines. The first two alone had 27 scheduled crossings every day. With the advent of V-J Day and the increased emphasis on demobilization, the activities of the Air Transport Command were curtailed towards the end of the year. However, the commercial carriers were establishing non-military services as fast as international agreements would permit. At the end of the year, there were approximately 100 airplanes in transoceanic service. At the same time American Airlines inaugurated the first daily commercial landplane service to England with a schedule of seven round trips a week.

The domestic network of airway route miles reached the all-time high of 66,971 miles, an increase of 65 per cent over the 1944 figure of 40,392 miles. As of December 15, there were 402 transport airplanes flying in regular scheduled service over these routes. Again, this is an all-time record as compared with the previous maximum of 359 aircraft in use prior to Pearl Harbor. Plane utilization reached a maximum of 11 to 12 hours daily, but this had dropped somewhat towards the end of the year. However, the airline operators had placed

OPERATIONS FOR FIRST 10 MONTHS OF 1945 AS COMPARED WITH SAME PERIOD OF 1944

Operator	Revenue Miles Flown January–October		Revenue Passengers Carried (Unduplicated) January–October		Revenue Passenger Miles Flown January–October	
	1945	1944	1945	1944	1945	1944
All American Aviation, Inc.	1,231,565	1,003,076	0	0	0	0
American Airlines, Inc.	39,175,385	27,936,401	1,054,779	762,315	651,197,599	466,669,181
Braniff Airways, Inc.	6,624,386	4,287,719	276,618	180,190	118,639,034	75,981,770
Chicago & Southern Air Lines, Inc.	4,279,737	2,270,505	158,255	84,513	70,534,599	39,703,972
Continental Air Lines, Inc.	3,125,067	1,921,527	98,795	54,776	41,419,913	19,284,672
Delta Air Corporation	4,824,391	2,779,258	223,727	132,661	85,207,824	52,774,871
Eastern Air Lines, Inc.	22,130,000	13,779,049	610,000	380,053	360,000,000	211,892,560
Essair, Inc.	181,822		2,297		700,795	
Inland Air Lines, Inc.	1,448,288	977,996	48,638	17,589	15,458,459	5,621,828
Mid-Continent Airlines, Inc.	2,653,584	1,855,295	122,751	61,812	34,557,859	17,757,033
National Airlines, Inc.	4,973,653	2,621,699	120,696	92,349	60,167,164	31,498,069
Northeast Airlines, Inc.	1,825,448	822,458	138,737	43,462	30,940,259	10,591,196
Northwest Airlines, Inc.	10,040,246	5,912,445	270,092	146,246	178,025,697	97,614,142
Pennsylvania-Central Airlines Corp.	9,165,164	4,204,280	606,083	334,240	155,957,211	73,202,517
Transcontinental & Western Air, Inc.	26,358,652	17,722,610	463,595	327,902	428,782,642	288,609,531
United Air Lines, Inc.	32,679,615	24,087,980	621,637	418,275	494,561,022	377,191,446
Western Airlines, Inc.	4,436,601	2,458,475	185,485	95,489	79,846,952	44,898,504
Total	175,163,604	114,640,773	5,002,165	3,131,872	2,806,097,129	1,813,291,292
Index (1944 = 100)	153.00	100.00	159.70	100.00	154.70	100.00
Caribbean Atlantic Airlines, Inc.	231,831	178,535	26,356	16,440	1,610,270	1,140,690
Colonial Airlines, Inc.	1,422,624	841,864	77,136	46,473	24,177,839	14,410,024
Hawaiian Airlines, Ltd.	972,351	780,426	128,273	90,898	18,342,978	13,057,333
Grand Total	177,790,410	116,441,598	5,234,930	3,285,683	2,850,228,216	1,841,899,339
Index (1944 = 100)	152.50	100.00	159.00	100.00	154.70	100.00

Operator	Express Carried (Tons) January–October		Express Ton-Miles Flown January–October		Passenger Seat-Miles Flown January–October		Revenue Passenger Load Factor (Per Cent) January–October	
	1945	1944	1945	1944	1945	1944	1945	1944
All American Aviation, Inc.	63.1	60.5	9,858	9,059	0	0		
American Airlines, Inc.	11,739.5	9,272.4	6,025,942	4,291,426	721,200,496	516,170,170	90.29	90.41
Braniff Airways, Inc.	897.0	523.1	421,410	240,862	132,461,496	83,520,886	89.56	90.97
Chicago & Southern Air Lines, Inc.	731.9	439.0	311,518	184,371	88,785,790	46,866,971	79.44	84.72
Continental Air Lines, Inc.	177.5	80.4	81,925	32,300	52,194,431	21,862,532	79.36	88.21
Delta Air Corporation	552.2	383.5	203,519	140,128	100,332,000	57,713,302	84.93	91.44
Eastern Air Lines, Inc.	4,600.0	2,302.3	2,920,000	1,375,671	400,000,000	245,024,257	90.00	86.48
Essair, Inc.	1.4		390		1,339,434		52.32	
Inland Air Lines, Inc.	44.3	20.1	10,495	4,044	21,322,025	7,818,609	72.50	71.90
Mid-Continent Airlines, Inc.	171.3	101.3	51,303	27,414	45,971,246	22,958,800	75.17	77.34
National Airlines, Inc.	215.9	167.0	113,238	57,482	66,936,656	36,010,332	89.89	87.47
Northeast Airlines, Inc.	171.5	52.3	32,780	10,272	41,603,377	17,188,358	74.37	61.62
Northwest Airlines, Inc.	1,251.9	917.5	726,288	492,302	199,990,184	113,681,659	89.02	85.87
Pennsylvania-Central Airlines Corp.	3,338.6	2,008.6	762,844	383,640	189,131,878	87,530,906	82.46	83.63
Transcontinental & Western Air, Inc.	7,343.6	5,523.6	3,881,839	2,909,857	472,920,622	312,720,950	90.67	92.29
United Air Lines, Inc.	5,142.4	4,460.8	4,204,288	3,388,563	519,462,473	391,666,218	95.21	96.30
Western Airlines, Inc.	581.6	368.1	254,026	181,447	90,695,832	50,417,547	88.04	89.05
Total	37,033.7	26,680.5	19,011,664	13,728,838	3,144,347,940	2,011,151,497	88.76	90.16
Index (1944 = 100)	138.90	100.00	138.24	100.00	156.10	100.00	98.50	100.00
Caribbean Atlantic Airlines, Inc.	114.0	84.6	9,195	6,585	3,107,371	1,585,143	51.82	71.96
Colonial Airlines, Inc.	94.5	103.1	28,151	32,061	29,823,246	17,536,748	81.07	82.17
Hawaiian Airlines, Ltd.	2,704.8	2,978.2	410,615	458,794	19,505,880	13,843,824	94.04	94.31
Grand Total	39,947.0	29,846.4	19,459,625	14,226,278	3,196,784,437	2,044,117,212	86.50	90.11
Index (1944 = 100)	133.80	100.00	130.70	100.00	156.00	100.00	96.00	100.00

orders for additional new airplanes, as well as some conversions, which will bring the fleet total to 1,414 planes by the end of 1946, with a seating capacity of 58,284 passengers.

PASSENGERS, SCHEDULES, AND EQUIPMENT

The number of revenue passengers carried in 1945 was 6,621,842, an increase of 44.7 per cent over the previous yearly total of 4,575,716. Undoubtedly the extensive redeployment of troops across the country after V-E Day and the eastbound load of returning soldiers and sailors helped considerably in establishing the record figure. At the end of the year, the seating capacity was still insufficient, so much so that the Army and Navy took over 70 per cent of the eastbound space for returning veterans. The load factor, however, decreased for the first time to a figure of 88.76 per cent, a 1½ per cent reduction over 1944 operations, when the load factor was 90.16. With the addition of more airplanes to the airline fleet and the reduced usage by the military services, it is expected that 1946 will see a further reduction of load factor. For the first ten month period of 1945, American airlines, United Airlines, Eastern Airlines, Pennsylvania Central Airlines, and Transcontinental and Western Air carried the greatest number of passengers in the order indicated. The numbers were respectively 1,054,779, 621,637, 610,000, 606,083 and 463,595, a total of 3,361,094 passengers, representing approximately 67.4 per cent of the total for all airline operators.

Passenger seat miles flown in the period from January to October inclusive totaled 3,144,347,940, an increase of 56.1 per cent over the same period in 1944. The ratio of passenger miles flown to seat miles flown results in the load factor of 88.76. As more equipment goes into service in 1946, seat miles will go up at a very rapid rate. The estimated total of 1,414 airplanes by the end of 1946 will seat 58,284 passengers. The average number of seats per airplane rose to 19.2, a 1 per cent increase over the 1944 figure. The average speed remained about 195 miles per hour as in 1944. Of the 634 domestic transports available or on order Jan. 1, 1946, 458 were the familiar DC-3 type. The Douglas DC-4 (Army C-54) was next in number with 147. Lockheed Lodestars, Electras, and Boeings made up the remainder of 29.

All of the larger operators had orders placed for more efficient and speedier transports. Eastern Air Lines, Transcontinental and Western Air, and Pan American Airways will be using the new 48 passenger Lockheed Constellations, with a cocktail lounge, rest rooms, and dining facilities. This airplane will make possible such schedules as 8 hours and 37 minutes from Los Angeles to Honolulu or 4 hours from New York to Miami.

Boeings' Stratocruiser, a development of its famous B-29, can carry 114 passengers as a commuter. As a deluxe model it will accommodate 67 passengers in its upper deck and 14 in the lower deck lounge. Performance is such that Chicago is within 2 hours 30 minutes of New York and Los Angeles is only 8 hours 10 minutes from the East Coast. Another interesting model to be delivered to the airlines in 1947 is the Martin 202, a 30-place short haul airliner featuring low operational cost aimed in the direction of a 3-cent per mile fare. Many other more advanced types are in the process of development.

The length of the average trip per passenger of the domestic carriers as derived from the first ten months' operations was 562 miles, whereas the figure for all of 1944 was 571 miles. Overseas operations average trip was approximately 1,000 miles.

Most of the passengers carried in 1945 were still Army and Navy personnel or civilians with high priority. It is expected that the O.D.T. space control directive relative to eastbound transportation will be lifted by March 1. Thus 1946 will be the first year of a somewhat normal complement of civilian traffic. All indications point to a sustained level equal to or greater than the 1945 operation. Detail figures of revenue miles and passengers for each of the domestic operators are given in the table (pp. 608-9) for the first 10 months of the year.

AIR MAIL

Air mail ton miles for the year was 72,231,126 according to Air Transport Association reports, representing a 41.8 per cent increase over the 1944 figure of 50,850,000 miles. Air mail continues to be a source of revenue to the Government, with postal revenue exceeding the actual payment to the contractor. In fact, the indications are that the all-time deficit was wiped out by the end of 1945. Actual profit to the Government from air mail operations in 1944 was over $50,000,000.

Air mail ton miles for the fiscal years 1943, 1944, and 1945 were, respectively, 28,241,170, 42,289,845 and 61,698,222. Using the 1943 figure as an index of 100, the 44 and 45 indices become 149.2 and 218. In other words, air mail service more than doubled in two years. Total payment to airlines for 1945 fiscal year operations were $35,536,291.68 or a unit cost of $.576 per ton mile, corresponding to .288 mills per pound mile. This unit payment is 87.2 per cent of that of 1944 when the rate was .33.

The five highest payments to airline operators for carrying mail were United Air Lines $10,889,614.27, American Airlines $6,925,459.54, T.W.A. $6,737,243.34, Eastern Airlines $3,009,106.41, and Northwest Airlines $1,586,220.04. Total disbursements to all airlines were $35,536,291.68, whereas estimated payments for 1946 and 1947 were respectively $42,490,316.22 and $50,040,548.51.

The 1945 rate of payment is only 7.16 per cent of the 1933 rate which was 4.01 mills per pound mile. With the exception of 1938 and 1939, the rate has been reduced every year. In 1942 the ratio of domestic air mail to non-local first class mail was one to six. At the end of the year the perennial slogan, "all first class non local mail by air," was again in evidence. Air mail revenue continued to be approximately 20 per cent of the total revenue of the airlines, with passenger and express 74 per cent and 6 per cent respectively. In 1931, air mail revenue was 82.5 per cent of the total, whereas passenger revenue was only 17.2 per cent.

AIR EXPRESS AND CARGO

Air express ton miles for 1945 added up to a total of 24,505,243, a 42.8 per cent increase over the 17,142,676 ton miles for 1944. In the first ten months, express carried was 38.9 per cent over the previous year's period. Express ton miles (19,011,664) were 38.24 per cent above the previous year's 10 month period. It is expected that air express will continue to receive considerable impetus during the reconversion and initial peacetime production periods.

Beginning Jan. 1, 1946, the 19 domestic airline operators instituted a 13 per cent reduction in air express rates, bringing the rate down to 61.4 cents per ton mile. The expressed intention is to promote greater use of this service for the transportation of perishable commodities. Estimated revenue from express was approximately $11,000,000 as compared with a figure of $7,904,509 for 1944. At the beginning of 1946, there were 375 cities served directly by air express. A general idea of the expansion of this service may be obtained by a comparison with 1940 when only 250 cities were thus served.

Reference to page 552 of the 1945 printing of THE AMERICAN YEAR BOOK will yield a tabular summary of annual air express operations up to and including the year 1943. The 1944 figures were as follows: express pounds 66,305,427, pound miles 34,285,353,551, and revenue $7,904,509. The 1945 figures available at writing were 49,000,000,000 pound miles and revenue $11,000,000. Express accounted for approximately 5 per cent of the total revenue.

FARES AND REVENUES

Passenger fares were reduced during 1945 to 4½ cents per mile, a 17.8 per cent reduction over the 5.1 cent average fare in 1944. The following tabulation lists the average fares for each year starting with 1930; included in the same table are shown the average miles per trip and the load factor:

Year	Passenger Fare Cents Per Mile	Average Miles Per Trip	Passenger Load Factor
1930......	8.3	224	....
1931......	6.7	226	....
1932......	6.1	268	42.34
1933......	6.1	352	46.87
1934......	5.9	407	51.82
1935......	5.7	420	54.83
1936......	5.7	427	64.01
1937......	5.6	432	57.55
1938......	5.7	415	58.74
1939......	5.1	400	62.08
1940......	5.1	388	63.84
1941......	5.0	367	64.40
1942......	5.3	417	76.11
1943......	5.5	476	90.01
1944......	5.1	571	90.83
1945......	4.5	562	88.76

The annual operating revenue for all domestic air mail carriers is tabulated on page 552 of the 1945 printing of THE AMERICAN YEAR BOOK. The operating revenue figures for 1944 were $95,262,342 from passengers, $27,949,987 from mail payments, $7,772,745 from express, and $2,809,828 from other sources. Percentage-wise, the revenue figures breakdown (after reserves for Federal taxes) into 72.54 per cent for passengers, 20.74 per cent mail, 4.98 per cent express, and 1.74 for other sources.

The expense dollar is distributed as follows: 49.1 cents for wages and salaries with 10.1 cents for flying personnel; 5.1 cents for repairs and material, 8.6 cents for fuel; 22.4 cents for rent, travel expenses, passenger supplies, etc.; 11.7 cents for taxes depreciation and insurance; and 3.1 cents for advertising and publicity. The operations of all of the domestic carriers are summarized in the accompanying table.

AIRPORTS

On Jan. 1, 1945, there were 1,215 Class 1 airports, 936 Class 2, 464 Class 3, and 812 Class 4 airports. The biggest percentage increase was 33 per cent for Class 1 with 24 per cent for Class 4 following. Class 1 is an elementary field with landing strips 1,800-2,700 feet long and suitable primarily for small personal aircraft. A Class 4 airport is one with runways 4,500-5,000 feet and is adequate for the largest aircraft now in use.

The National Airport Plan for the construction of 3,050 airports at an expenditure of $1,000,000,000 over a period of 10 years was still in Congress at the end of the year. Undoubtedly the situation is complicated somewhat by the 700 surplus airports awaiting disposition. Since the original bill required the creation of state aeronautics departments, most states now have some central body that may deal with the Government. In fact, most states are ready to go the moment any bill becomes law. Fortunately the work of the National Association of State Aviation Officials has resulted in general similarity of most of the organizations.

The Surplus Property Administrator, W. Stuart Symington, issued a statement outlining the conditions by which states, towns, or municipalities may obtain surplus airports. According to the statement, a state or municipality has the first chance to obtain any airport, and it may do so by agreeing to maintain the airport and to accord free rights to government planes. In case of national emergency, the Federal Government would again assume full control. Under these provisions, an airport would be given to the state gratis. If no state or municipality is interested, the airport is subject to sale or lease to any other applicant.

The principal reason for the deadlock in Congress on the Federal Airport Bill has been over the subject of channeling of funds. The question still revolves around the advisability of routing the funds through state aviation bodies. The details of the proposed bill are outlined on page 552 of the 1945 printing of THE AMERICAN YEAR BOOK.

AIRWAYS

The airway route mileage increased from 36,982 to 40,392 as of January 1945, of which a total of 34,424 miles were lighted. Additional navigational aids necessary for flying safety were added during the year in the form of radio range stations, radio marker beacons, and radio broadcast stations. Weather reporting, as well as traffic control facilities, were also expanded. However, the most important aids such as radar, the Loran navigational system, and various blind landing systems, all developed during the war and on the secret list until the end of the war, had not yet been universally applied to routine civil flying operations. The ability of radar to locate definitely in space airplanes, storm centers will result most certainly in a degree of control that should result in increased flying safety under the most difficult conditions. Even a local fog-dispersal system was demonstrated to the airlines during the year.

AIRCRAFT MANUFACTURE

The aircraft manufacturers really had a kaleidoscopic year. Up to V-J Day, practically all were still engaged in war work, although some substantial cutbacks had been made after V-E Day. On Aug. 14, 1945, contracts totaling $9,000,000,000 were cancelled, with a saving of approximately $7,000,000,000. Within two weeks, 450,000 employees joined the ranks of the unemployed. From a pre-war industry that employed 50,000, producing approximately 2,500 airplanes a year, the same nucleus was expanded to the largest industry in the world in 1944, with an annual production of nearly 100,000 airplanes. At the end of the year, the industry had shrunk to a position of 15th in this country.

At the end of the year, approximately a dozen types were in limited production, and most of the manufacturers were well on their way with the design of new civil aircraft or the conversion of their plants to civilian aircraft manufacture. Only four or five were in actual production of civilian airplanes, and these were in the 2-place cub types. At least three manufacturers of these types were each producing somewhere between 25 and 30 airplanes per day. This production was a continuation of the same types that had been used so well in the Army grasshopper circuits.

Personal aircraft manufacturers had orders on their books for 50,000 airplanes, whereas the maximum number of civil aircraft ever produced in one year was 6,844 in 1941. It has been estimated that 30,000 aircraft will be manufactured in 1946. The majority of the manufacturers were still in the tooling phase for the larger types of personal aircraft. The four-place airplane, powered with 150 horsepower, was very much in the spotlight as the forerunner of the practical size of a personal airplane. In fact, all surveys supported the belief that this size would predominate in the next decade. At the end of the year, it was estimated that the total employment in the manufacturing phase was 150,000, with expectations that it will not exceed 200,000 in 1946. The latter figure is still four times that of the best pre-war year. With the production know-how acquired during the war, it is expected that the 30,000 airplane figure for the year will be easily obtained.

From all indications the end of 1945 pointed to a large demand for all types of personal aircraft. Schedules and projections for 1946 were revised several times by practically all in the industry. The large number of pilots trained during the year, the large number who flew either as crew members or passengers, all of these contributed to the greatest demand for civil aircraft in history. The Civil Aeronautics Authority activities were planted in the direction of development of personal flying on a mass scale; 70,000 student pilot certificates were issued in 1945 compared with 30,000 for 1939, the last normal pre-war year. A further index was the increase in the number of registered civil aircraft which rose from 22,000 to 30,000 principally as a result of sale of surplus planes. However, the general consensus of opinion is that the sale of surplus airplanes will not hinder in any way the sale of the new models of civil aircraft which will appear on the market in quantity in the spring of 1946.

Another phase of aircraft manufacture which was in full swing at the end of the year was the conversion of several military transport types into airline transports. Approximately 1,000 such airplanes, all fundamentally proven types, were scheduled to be converted during the spring and summer of 1946. The famous C-54 four-engine type was most in demand, and it will be the first four-engine domestic transport in use in any quantity. The conversion of such a transport normally requires about two months and costs approximately $200,000. These conversions are only stop-gap equipment until the airlines receive more modern and efficient types in 1947. Still other manufacturers are building with a few modifications their standard pre-war airline transport types.

RESEARCH

The atomic bomb brought to dramatic focus the need for sustained research as insurance for our continued survival as well as peacetime prosperity. Coupled with the wartime applications of radar, jet, and rocket propulsion guided missiles and other developments not as spectacular, it is evident we are on the threshold of even more momentous discoveries. It has been generally conceded that our national interest requires that some scientific activity be provided for systematically as a part of our normal governmental functions.

The Pepper-Johnson-Kilgore bill before Congress proposes the establishment of a National Science Foundation which would examine all government-financed research and development activities and recommend to the agencies concerned and to the President such changes as appear desirable. It would also establish a Research Committee for National Defense and a Research Committee for Health and the Medical Sciences to approve all government military and medical research contracts. At least half of the Foundation's funds would be spent through contract with nonprofit educational and research institutions. The principal objective would be the maintenance of a certain level of research.

RADAR

The miracle of radar was revealed somewhat to the public after V-J Day. A demonstration of the various firms of radar equipment in use by the Army Air Forces was given to the industry representatives at Wright Field, Dayton, O. Its ability to detect the presence of aircraft, its ability virtually to map terrain not visible and its ability to locate and track storm centers make it one of the most valuable potential safety aids yet developed. Airport and airway traffic control will be a matter of observing a screen on which will appear in their proper relationship in space aircraft as far away as 25 miles. Radar's ability to spot storm centers has already resulted in much more reliable weather forecasting. Its application in blind landings has also been demonstrated, and this application developed for airline use should remove the last problem associated with no visibility.

CONTROL OF GUIDED MISSILES

The use of the V-1 and V-2 bombs during the war focused attention on the further development of guided missiles. The discovery of various other controlled missiles in Germany, yet in the experimental stage when the war ended, served to spotlight this even more. In fact, it is expected that such airborne weapons will be the backbone of the air force of the future. This has been recognized by the Army Air Forces and the Bureau of Aeronautics who have been given the responsibility for the control of procurement and production of such missiles, which depend primarily on aerodynamics forces. The commercial peacetime applications of remote control open up such vistas as automatic takeoff, flight, and landings of airplanes. Automatic landings have already been made in some of the transoceanic operations of the Air Transport Command.

JET-PROPELLED AIRCRAFT

The development of jet-propelled aircraft continued during the year and culminated in the P-80 fighter with speeds approaching 600 miles per hour. A new world's record was established at 606 miles per hour by one of the latest British jet-propelled types. The jet engine has made possible speeds hitherto impossible of attainment with the normal reciprocating gasoline engines. While jet-powered commercial air transports are still several years hence, it is now evident that cruising speeds above 400 miles per hour will be obtained only by means of jet engines. The compactness of the units, the elimination of propellers and their controls, and the fact that the efficiency increases with speed, dictates that any designs of the future with required cruising speeds in excess of 400 m.p.h. must be of the jet-propelled type.

ROCKET PROPULSION

Rocket propulsion developed to the highest degree by the Germans in their frantic attempt to intercept our bombers is also coming in for its share of attention. Since it does not need oxygen it is in that respect the ideal high altitude means of propulsion. Its immediate application appears to be in the form of J.A.T.O., which means jet assisted takeoff. This consists of several rockets whose energy is used during the takeoff run to permit the carrying of heavier loads or simply the reduction of the distance for takeoff. The heavily loaded cargo airplane of the future will certainly use J.A.T.O. Its greatest development in this country for takeoff facilitation was one of our secret weapons. The use of rocket power for aircraft has not yet reached the point where it has the degree of safety and control required for commercial operations.

RESEARCH IN PRESSURES AND EFFECTS ON THE HUMAN BODY

Research in the physiological effects on the human body of exposure to reduced temperatures, pressures have also yielded valuable data in connection with the pressurization of aircraft. The success of the B-29's was owing in no small measure to its pressurized cabin and the ability of the crew to withstand the long flights. The controlled pressure and temperature of the cabin insured maximum operating efficiency of the crew. The study of the effect of accelerations upon the human body resulted in the development of a G suit for pilots which gave them a definite advantage in combat. All of these high altitude investigations are reflected in the latest designs on the boards for the new global liners due to make their appearance in two or three years on American-operated routes.

PERIODICAL PUBLICATIONS

Aviation
330 West 42nd Street, New York City.
Bus Transportation
330 West 42nd Street, New York City.
Electrical Communication
67 Broad Street, New York City.
Electrical World
330 West 42nd Street, New York City.
Journal of the Aeronautical Sciences
30 Rockefeller Plaza, New York City.
Manufacturers' News
120 South La Salle Street, Chicago.
Manufacturers Record
Candler Bldg., Baltimore, Md.
Marine Age
75 West Street, New York City.
Marine Engineering & Shipping Review
30 Church Street, New York City.
Marine Journal
5 Beekman Street, New York City.
Marine News
26 Water Street, New York City.
Marine Progress
95 Broad Street, New York City.

Mass Transportation
431 South Dearborn Street, Chicago.
National Aeronautics
Willard Hotel, Chicago.
Protectionist
38 Chauncy Street, Boston.
Railway Age
30 Church Street, New York City.
S.A.E. (Journal of the Society of Automotive Engineers)
29 West 39th Street, New York City.
Shipping Digest
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PART FIVE

SOCIAL AIMS AND CONDITIONS

DIVISION XIV

POPULATION AND MIGRATION

POPULATION STATISTICS

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POPULATION GROWTH

The population of the United States on July 1, 1945, including persons in military service abroad, was estimated at 139,621,431. This figure represents an increase of 1,537,982, or 1.11 per cent, over the estimate for July 1, 1944. The increase, it may be noted, is slightly less than the increase in the preceding year and materially less than the increase (1.36 per cent) in 1943, which was the largest in any recent year. These estimates are presented for July 1 of each year from 1940 to 1945 in Table 1, together with estimates for each month of the most recent year. The estimates of increase since the 1940 Census are based on statistics of births, deaths, and net immigration for the period subsequent to the Census. Data for births and deaths have been adjusted for under-registration, and the figures for deaths include both combat and non-combat deaths of servicemen overseas.

The population estimated for July 1, 1945, represents an increase of 7,952,156, or 6.04 per cent, over the 1940 Census figure. A provisional estimate of the total population for Oct. 1, 1945 is slightly over 140,000,000; if the present monthly rate of increase is continued until April, 1946, the accumulated increase for the six years following the Census will then be approximately equal to the entire increase of 8,894,229 between the Censuses of 1930 and 1940. The chief source of the accelerated rate of population increase is the wartime rise in the birth rate. Though the birth rate has shown a tendency to decline somewhat since 1943, the level is still considerably higher than at any time between 1930 and 1940, and it bids fair, as indicated later, to remain relatively high for at least the next two or three years.

The total increase in population, between April 1, 1940 and July 1, 1945, was made up primarily of the excess of births over deaths, which amounted to 7,358,047, though net immigration contributed 594,109. While immigration still represents a minor part of the total, the current figures do show the increasing importance of immigration as a source of population growth, as compared in particular with the decade 1930-40, during which its contribution was a minus quantity. The figures representing net civilian immigration, as shown in Table 1, result from computations involving arrivals and departures of both aliens and citizens. The data may be considered in three

TABLE 1

ESTIMATED POPULATION OF CONTINENTAL UNITED STATES INCLUDING ARMED FORCES OVERSEAS: JULY 1, 1940 TO 1945

Date	Estimated Population	Increase Since Preceding Date		Gain or Loss in Preceding Period			
		Number	Per Cent	Births[1]	Deaths[1]	Excess of Births Over Deaths	Net Civilian Immigration
July 1, 1945	139,621,431	1,537,982	1.11	2,970,284	1,631,215	1,339,069	198,913
July 1, 1944	138,083,449	1,586,400	1.16	3,016,562	1,556,377	1,460,185	126,215
July 1, 1943	136,497,049	1,832,125	1.36	3,209,177	1,487,068	1,722,109	110,016
July 1, 1942	134,664,924	1,462,051	1.10	2,808,000	1,415,194	1,392,806	69,245
July 1, 1941	133,202,873	1,232,649	0.93	2,628,113	1,454,088	1,174,025	58,624
July 1, 1940	131,970,224	300,949	0.23	623,065	353,212	269,853	31,096
April 1, 1940	131,669,275	—	—	—	—	—	—
Last year by months							
July 1, 1945	139,621,431	129,606	0.09	234,891	125,870	109,021	20,585
June 1, 1945	139,491,825	122,180	0.09	237,324	140,263	97,061	25,119
May 1, 1945	139,369,645	115,542	0.08	232,871	139,358	93,513	22,029
April 1, 1945	139,254,103	111,795	0.08	247,747	149,804	97,943	13,852
March 1, 1945	139,142,308	111,951	0.08	234,192	135,551	98,641	13,310
Feb. 1, 1945	139,030.357	107,723	0.08	250,252	154,342	95,910	11,813
Jan. 1, 1945	138,922,634	111,869	0.08	248,612	148,706	99,906	11,963
Dec. 1, 1944	138,810,765	125,928	0.09	243,365	128,547	114,818	11,110
Nov. 1, 1944	138,684,837	124,947	0.09	250,634	139,670	110,964	13,983
Oct. 1, 1944	138,559,890	158,257	0.11	252,082	114,204	137,878	20,379
Sept. 1, 1944	138,401,633	157,226	0.11	268,498	128,164	140,334	16,892
Aug. 1, 1944	138,244,407	160,958	0.12	269,816	126,736	143,080	17,878
July 1, 1944	138,083,449	—	—	—	—	—	—

---

[1] Estimated total, including adjustment for under-registration.

groups: (1) alien immigrants and emigrants; (2) alien non-immigrants and non-emigrants (for example, government officials, temporary visitors, and persons in transit through the United States); and (3) citizens of the United States. The first group is the smallest, both in gross movement and in net resultant. Figures for the whole period from April 1, 1940, to July 1, 1945, are:

Arrivals	1,696,730
Immigrant aliens	187,327
Non-immigrant aliens	552,375
Citizens of the United States	957,028
Departures	1,102,621
Emigrant aliens	43,890
Non-emigrant aliens	367,403
Citizens of the United States	691,328
Excess of arrivals over departures (net immigration)	594,109
Immigrant aliens	143,437
Non-immigrant aliens	184,972
Citizens of the United States	265,700

Estimates of the population actually in continental United States, excluding armed forces overseas, and estimates of the civilian population for July 1 of each year from 1940 to 1945 are presented in Table 2.

The first set of estimates reflects the movement of troops overseas during the war period. The net decreases shown for the years ended July 1, 1944 and July 1, 1945, indicate the extent to which these movements exceeded the natural increase in the population. Statistics available for six-month periods indicate that the decrease in the population in continental United States began in the last half of the fiscal year 1943 (though the year as a whole shows a slight increase) and that the decrease in the fiscal year 1945 was confined entirely to the first half of the year, the period from Jan. 1 to July 1, 1945, showing an increase of around 300,000, as the war came to an end and large numbers of men were returned from the war areas.

The second set of estimates in Table 2 shows the effects of the whole military induction program on the civilian

TABLE 2

ESTIMATED POPULATION OF CONTINENTAL UNITED STATES EXCLUDING ARMED FORCES OVERSEAS, AND ESTIMATED CIVILIAN POPULATION: JULY 1, 1940 TO 1945

Date	Population	Increase (+) or Decrease (−) Since Preceding Date	
		Number	Per Cent
Estimated Population Excluding Armed Forces Overseas			
July 1, 1945	131,975,774	−576,231	−0.43
July 1, 1944	132,552,005	−1,414,314	−1.06
July 1, 1943	133,966,319	+195,819	+0.15
July 1, 1942	133,770,500	+710,455	+0.53
July 1, 1941	133,060,045	+1,105,901	+0.84
July 1, 1940	131,954,144	—	—
Estimated Civilian Population			
July 1, 1945	127,409,297	+873,123	+0.69
July 1, 1944	126,536,174	−874,183	−0.69
July 1, 1943	127,410,357	−3,464,553	−2.65
July 1, 1942	130,874,910	−682,820	−0.52
July 1, 1941	131,557,730	−101,556	−0.08
July 1, 1940	131,659,286	—	—

population. The net decreases again represent the excess of inductions over natural increase. During the last half of the calendar year 1945, that is, subsequent to July 1, 1945, the latest date shown in the table, the civilian population has, of course, been increasing rapidly with the reduction in the military forces. The number of persons in military service in July, 1945, which was approximately the maximum, was somewhat over 12,000,000; in November, 1945, the number had been reduced to around 9,000,000.

All of the estimates in Tables 1 and 2 are presented to the last digit, as computed, instead of being rounded, not because they are assumed to be accurate to the last unit, but for convenience in summation.

BIRTH AND DEATH RATES

As already indicated, the recent rise in the birth rate has been the principal factor contributing to the acceleration in the rate of population growth. During the calendar year 1944, there were 2,969,000 births (including estimates for under-registration). This represents a decided increase as compared with the average of about 2,400,000 per year which prevailed from 1930 to 1940, but is materially smaller than the maximum of 3,159,000 in 1943. The rate prevailing in 1944 was approximately maintained throughout the year 1945, preliminary totals for the first ten months of 1945 being only slightly below the figure for the corresponding months of 1944. It is evident, then, that while the birth rate has shown a tendency to decline somewhat since 1943, the decline has been moderate and the level is still considerably higher than at any time between 1930 and 1940. It is expected that, with the return of servicemen from overseas and rapid demobilization, the birth rate may take another upswing and continue at current or somewhat higher rates for two or three more years. While the birth rate in recent years has been relatively high, the death rate has shown little increase over the average for the preceding ten years. Even military mortality, which amounted in total to around 300,000, has not been sufficient to raise the number of deaths in any one year by more than about 150,000.

The most significant data on births and deaths which need to be considered in any study of trends in population growth are presented in Table 3, which gives for each year from 1920 to 1944 the number of registered births and deaths, the annual rate per thousand of the population based on registered data, and estimated totals, including both adjustments for under-registration and, for years prior to 1933, estimates for non-registration states; and in the final column the excess of births over deaths, frequently termed the natural increase.

POPULATION BY STATES

The population actually resident in the Northeastern States decreased by 4.8 per cent between 1940 and 1945; the population of the North Central States likewise decreased by 3.4 per cent, while the population of the Southern States increased 2.1 per cent and the Western States (including the Mountain and Pacific divisions) increased 18 per cent. Among the individual states, California showed by far the largest increase, the gain amounting to 1,915,301, or 27.7 per cent, while New York, with a loss of 894,229, or 6.6 per cent, showed the greatest loss. Estimates of the population on July 1, 1945, are presented by states in Table 4, with 1940 Census figures for comparison. In considering the figures in the table, it should be kept in mind that, by the middle of 1945, the movement of troops overseas had almost equaled the natural growth of population since 1940, so that the population of the United States as a whole, excluding armed forces overseas, was only 0.2 per cent larger than in 1940. This means that the decreases in many states were largely the result of the induction of men of military age for overseas serv-

TABLE 3

BIRTHS AND DEATHS IN THE UNITED STATES: 1920 TO 1944

(Registration for years prior to 1933 are for the current registration area. The birth registration states in 1920 included 59.7 per cent of the total population of the country and the death registration states 80.9 per cent, these areas gradually expanding until complete coverage was attained in 1933.)

Year	Births Registered		Deaths Registered		Estimated Totals, Including Adjustment for Under-registration		
	Number of Births	Rate per 1,000 Pop.	Number of Deaths	Rate per 1,000 Pop.	Births	Deaths	Excess of Births Over Deaths
1944	2,794,800	20.2	1,411,338	10.6	2,969,186	1,580,478	1,388,708
1943	2,934,860	21.5	1,459,544	10.9	3,158,593	1,547,940	1,610,653
1942	2,808,996	20.9	1,385,187	10.4	3,038,434	1,434,277	1,604,157
1941	2,513,427	18.9	1,397,642	10.5	2,717,218	1,443,088	1,274,130
1940	2,360,399	17.9	1,417,269	10.7	2,558,499	1,474,213	1,084,286
1939	2,265,588	17.3	1,387,897	10.6	2,457,254	1,444,222	1,013,032
1938	2,286,962	17.6	1,381,391	10.6	2,483,129	1,438,200	1,044,929
1937	2,203,337	17.1	1,450,427	11.3	2,394,932	1,510,861	884,071
1936	2,144,790	16.7	1,479,228	11.6	2,333,830	1,541,665	792,165
1935	2,155,105	16.9	1,392,752	10.9	2,347,609	1,452,296	895,313
1934	2,167,636	17.2	1,396,903	11.1	2,366,415	1,458,145	908,270
1933	2,081,232	16.6	1,342,106	10.7	2,274,570	1,401,677	872,893
1932	2,074,042	17.4	1,293,269	10.9	2,382,932	1,419,018	963,914
1931	2,112,760	18.0	1,307,273	11.1	2,443,593	1,434,396	1,009,197
1930	2,203,958	18.9	1,327,240	11.3	2,551,535	1,457,113	1,094,422
1929	2,169,920	18.8	1,369,757	11.9	2,525,000	1,494,000	1,031,000
1928	2,233,149	19.7	1,361,987	12.0	2,612,000	1,492,000	1,120,000
1927	2,137,836	20.5	1,211,627	11.3	2,733,000	1,398,000	1,335,000
1926	1,856,068	20.5	1,257,256	12.1	2,767,000	1,480,000	1,287,000
1925	1,878,880	21.3	1,191,809	11.7	2,829,000	1,411,000	1,418,000
1924	1,930,614	22.2	1,151,076	11.6	2,893,000	1,376,000	1,517,000
1923	1,792,646	22.1	1,174,065	12.1	2,824,000	1,408,000	1,416,000
1922	1,774,911	22.3	1,083,952	11.7	2,792,000	1,333,000	1,459,000
1921	1,714,261	24.2	1,009,673	11.5	2,956,000	1,300,000	1,656,000
1920	1,508,874	23.7	1,118,070	13.0	2,851,000	1,442,000	1,409,000

XIV. POPULATION AND MIGRATION

TABLE 4

ESTIMATED POPULATION IN THE UNITED STATES, BY STATES: 1945

(Excluding armed forces overseas)

State	July 1, 1944 (estimate)	April 1, 1940 (census)	Increase (+) or Decrease (−), 1940 to 1945	
			Number	Per Cent
United States........	131,975,774	131,869,275	+306,499	+0.2
New England:				
Maine..................	785,913	847,226	−61,313	−7.2
New Hampshire.........	452,174	491,524	−39,350	−8.0
Vermont................	310,352	359,231	−48,879	−13.6
Massachusetts...........	4,183,179	4,316,721	−133,542	−3.1
Rhode Island............	758,222	713,346	+44,876	+6.3
Connecticut.............	1,786,300	1,709,242	+77,058	+4.5
Middle Atlantic:				
New York...............	12,584,913	13,479,142	−894,229	−6.6
New Jersey..............	4,200,941	4,160,165	+40,776	+1.0
Pennsylvania............	9,193,957	9,900,180	−706,223	−7.1
East North Central:				
Ohio....................	6,873,448	6,907,612	−34,164	−0.5
Indiana.................	3,437,745	3,427,796	+9,949	+0.3
Illinois.................	7,721,099	7,897,241	−176,142	−2.2
Michigan................	5,471,774	5,256,106	+215,668	+4.1
Wisconsin...............	2,952,205	3,137,587	−185,382	−5.9
West North Central:				
Minnesota..............	2,497,485	2,792,300	−294,815	−10.6
Iowa....................	2,259,526	2,538,268	−278,742	−11.0
Missouri................	3,556,693	3,784,664	−227,971	−6.0
North Dakota...........	520,935	641,935	−121,000	−18.8
South Dakota...........	555,347	642,961	−87,614	−13.6
Nebraska...............	1,198,492	1,315,834	−117,342	−8.9
Kansas..................	1,740,379	1,801,028	−60,649	−3.4
South Atlantic:				
Delaware...............	286,832	266,505	+20,327	+7.6
Maryland...............	2,125,419	1,821,244	+304,175	+16.7
District of Columbia.....	938,458	663,091	+275,367	+41.5
Virginia.................	3,079,706	2,677,773	+401,933	+15.0
West Virginia............	1,724,677	1,901,974	−177,297	−9.3
North Carolina..........	3,504,626	3,571,623	−66,997	−1.9
South Carolina..........	1,905,597	1,899,804	+5,793	+0.3
Georgia.................	3,191,766	3,123,723	+68,043	+2.2
Florida..................	2,385,917	1,897,414	+488,503	+25.7
East South Central:				
Kentucky...............	2,578,179	2,845,627	−267,448	−9.4
Tennessee..............	2,878,777	2,915,841	−37,064	−1.3
Alabama................	2,812,301	2,832,961	−20,660	−0.7
Mississippi..............	2,080,377	2,183,796	−103,419	−4.7
West South Central:				
Arkansas................	1,779,817	1,949,387	−169,570	−8.7
Louisiana...............	2,456,057	2,363,880	+92,177	+3.9
Oklahoma...............	2,034,460	2,336,434	−301,974	−12.9
Texas...................	6,786,740	6,414,824	+371,916	+5.8
Mountain:				
Montana................	457,624	559,456	−101,832	−18.2
Idaho...................	500,109	524,873	−24,764	−4.7
Wyoming...............	246,766	250,742	−3,976	−1.6
Colorado................	1,120,595	1,123,296	−2,701	−0.2
New Mexico.............	535,220	531,818	+3,402	+0.6
Arizona.................	630,298	499,261	+131,037	+26.2
Utah....................	616,989	550,310	+66,679	+12.1
Nevada..................	159,804	110,247	+49,557	+45.0
Pacific:				
Washington.............	2,088,574	1,736,191	+352,383	+20.3
Oregon..................	1,206,322	1,089,684	+116,638	+10.7
California..............	8,822,688	6,907,387	+1,915,301	+27.7

ice, rather than of extensive migration to other states.

FARM POPULATION

Between April, 1940, and January, 1945, civilian migration, inductions and enlistments brought about a net loss of 5,286,000 from the farm population, according to the results of a survey of 30,000 representative households in 43 states. By far the largest part of this estimated loss was owing to the migration of farm people to cities, towns, and villages, primarily to centers of war production. This figure represents the net result of migration from farms to non-farm areas, partly offset by migration from urban areas to farms. An independent survey indicates that this reverse movement was approximately equal to one-half the movement off farms. Another important part is represented by the loss of about 1,500,000 men who left the farms for military service. In this connection it may be noted that the entire civilian population of the United States in January, 1944, was less by about 4,374,000, or 3.3 per cent, than in April of 1940. The changes in the civilian population living on farms are indicated in Table 5.

EMPLOYMENT

On a basis of reports obtained each month from a representative sample of households in various parts of the country there have been published every month since March, 1940, estimates of the number of persons in the civilian labor force, the number employed, and the number unemployed. These figures are summarized by months from July to December, 1945, and for July of each year from 1940 to 1945, in Table 6. It may be noted that two different sets of figures are shown in Table 6 for July of 1945, one for the end of the annual series and another, somewhat larger, for the beginning of the monthly series. The larger figures result from a new enumerative procedure adopted in that month which has the effect of making the term "labor force" somewhat more inclusive. Figures for earlier dates, adjusted so as to be comparable with the results of this new procedure, are in preparation.

The figures presented in Table 6 for the last six months of the year 1945 show very definitely the effects of the demobilization of the armed forces and of the reconversion of productive activities to a peacetime basis. Between July and December, the number of persons in the civilian labor force decreased by nearly 2,000,000, this being the net result of an increase of about 1,000,000 in the number of males in the labor force and a decrease of about 3,000,000 in the number of

TABLE 5

CIVILIAN POPULATION LIVING ON FARMS: 1945 AND 1940

Age and Sex	Jan. 1, 1945 (estimate)	Apr. 1, 1940 (census)	Decrease, 1940 to 1945	
			Number	Per Cent
Total farm population, excluding institutions	24,960,000	30,394,000	5,286,000	17.4
Both Sexes:				
All ages	24,960,000	30,394,000	5,434,000	17.9
Under 14	7,730,000	8,940,000	1,210,000	13.5
14 years and over	17,230,000	21,454,000	4,224,000	19.7
Male:				
All ages	12,500,000	16,011,000	3,511,000	21.9
Under 14	3,960,000	4,562,000	602,000	13.2
14 years and over	8,540,000	11,449,000	2,909,000	25.4
Female:				
All ages	12,460,000	14,383,000	1,923,000	13.4
Under 14	3,770,000	4,378,000	608,000	13.9
14 years and over	8,690,000	10,005,000	1,315,000	13.1
Percentage of total civilian population living on farms	19.8	23.2	—	—

females. The number of unemployed increased during this five-month period from 950,000 to 1,950,000, all of the increase being in the number of male unemployed, with the number of female unemployed remaining constant at just under 500,000. The number of employed persons decreased from 54,270,000 in July, 1945, to 51,360,000 in December, this decrease of about 3,000,000 being entirely in the number of female workers, with practically no change in the number of employed men.

To some extent, the changes just referred to are affected by seasonal changes in agriculture, the number of males employed in this industry decreasing from 7,130,000 in July to 5,990,000 in December, while the number of females employed in agriculture decreased even more sharply, from 2,710,000 to 1,200,000. Even in non-agricultural employment there was a decrease in the number of employed women, from 16,900,000 in July, 1945 to 15,510,000 in December, while the number of men employed in non-agricultural industries increased something over 1,000,000 from 27,530,000 to 28,660,000.

The number of unemployed, which has been very low for several years, showed an increase of about 1,000,000 between the low point reached in August, 1945 and December, 1945, this increase resulting mainly from the addition of veterans returning from overseas to the group of persons seeking employment. The December unemployment figure, which is just short of 2,000,000, is far lower than the figure for unemployment forecast a few months ago for this stage in the reconversion period. Some allowance may be made for the fact that many returning veterans seem to have delayed for some weeks active efforts to obtain employment, though even with the assumption that many thousands of these veterans will shortly be added to the labor force, the figures seem definitely to indicate more satisfactory progress in re-employment than even the most optimistic forecasters had anticipated.

One other figure given in recent monthly reports on employment and unemployment is that representing the total labor force, including the armed forces, which stood at 61,160,000 in December 1945 as compared with 67,500,000 in July 1945. Approximately half the difference between these two figures is represented by the decrease of about 3,000,000 in the number of

TABLE 6

ESTIMATES OF EMPLOYMENT STATUS OF THE CIVILIAN POPULATION OF THE UNITED STATES: 1940 TO 1945

(institutional population excluded)

Date	Civilian Population 14 Years Old and Over	Civilian Labor Force		Employed	Unemployed	
		Number	Per Cent of Population		Number	Per Cent of Labor Force
New Series						
December, 1945......	9,803,000	53,310,000	54.4	51,360,000	1,950,000	3.7
November, 1945.....	96,620,000	53,440,000	55.3	51,730,000	1,710,000	3.2
October, 1945.......	95,000,000	53,110,000	55.9	51,560,000	1,550,000	2.9
September, 1945.....	93,670,000	52,900,000	56.5	51,250,000	1,650,000	3.1
August, 1945........	93,300,000	54,350,000	58.3	53,520,000	830,000	1.5
July, 1945...........	93,110,000	55,220,000	59.3	54,270,000	950,000	1.7
Old Series						
July, 1945...........	93,110,000	53,750,000	57.7	52,660,000	1,090,000	2.0
July, 1944...........	92,980,000	55,000,000	59.2	54,000,000	1,000,000	1.8
July, 1943...........	94,360,000	56,040,000	59.4	54,750,000	1,290,000	2.3
July, 1942...........	98,680,000	56,770,000	57.5	54,340,000	2,430,000	4.3
July, 1941...........	99,760,000	56,550,000	56.7	51,310,000	5,240,000	9.3
July, 1940...........	99,950,000	56,420,000	56.4	48,010,000	8,410,000	14.9

women in the labor force, on which comment has already been made, and the remainder represents mainly the demobilization of the armed forces. This combined figure, including persons in military service, is most significant, perhaps, as a starting point for any forecast of the future labor force or, for example, for consideration of the problems involved in the "60,000,000 jobs" which have been proposed as a goal to which we should look forward in 1950.

AGE AT MARRIAGE

It is frequently assumed that, with the increase in the time spent in school, marriage is deferred until a later age. Figures recently compiled in the Census Bureau indicate, however, that this is not the case—that, in fact, the average or median age at marriage has been actually declining over the 50 years for which figures are available. Specifically, the median age at first marriage for men declined from 26.1 years in 1890 to 24.3 years in 1940; and median age at marriage for women, while it has shown no considerable decline, has at least not increased, the figures being 22 years in 1890 and 21.6 years in 1940. The medians for both men and women are presented in Table 7.

TABLE 7

MEDIAN AGE AT FIRST MARRIAGE, BY SEX: 1890 TO 1940

Census Year	Male	Female
1940	24.3	21.6
1930	24.3	21.3
1920	24.6	21.2
1910	25.1	21.6
1900	25.9	21.9
1890	26.1	22.0

MARRIAGES, 1939 TO 1945

The most satisfactory index now available with respect to current changes in the number of marriages is provided by a monthly report to the Census Bureau of the number of marriage licenses issued in the 92 cities which had a population of 100,000 or more in 1940. The number of marriage licenses issued in all of these

TABLE 8

MARRIAGES IN LARGE CITIES AND IN THE UNITED STATES AS A WHOLE: 1939 TO 1945

Area and Year	Total	Increase (+) or Decrease (−) in Preceding Year	
		Number	Per Cent
Marriage Licenses Issued in Cities of 100,000 or Over:*			
1945	568,713	+55,566	+10.8
1944	513,147	−48,815	−8.7
1943	561,962	−32,946	−5.5
1942	594,908	+47,731	+8.7
1941	547,177	+70,273	+14.7
1940	476,904	+67,915	+16.6
1939	408,989	—	—
Marriages in the United States:			
1945**	1,600,000	+159,000	+11.0
1944	1,441,000	−136,000	−8.6
1943	1,577,000	−181,000	−10.3
1942	1,758,000	+79,000	+4.7
1941	1,679,000	+114,000	+7.3
1940	1,565,000	+190,000	+13.8
1939	1,375,000	—	—

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* Statistics represent marriage licenses issued in 34 cities with a population of 100,000 or more, and 57 counties containing the remaining 58 cities in this size group. County data are used where city data alone are not available.

** Preliminary estimate.

TABLE 9

CHANCES OF MARRIAGE FOR SINGLE PERSONS, AS COMPUTED BY LIFE TABLE METHODS

(based on data for period 1920–39)

Age	Per Cent Who Marry Within Year[1]		Per Cent Who Ever Marry[2]		Per Cent of Population Single, 1940	
	Male	Female	Male	Female	Male	Female
15 years	0.1	1.0	92.2	93.5	99.8	98.8
16 years	0.3	2.4	92.4	93.5	99.7	96.1
17 years	0.9	4.5	92.5	93.5	99.3	91.0
18 years	1.9	8.5	92.6	93.3	97.9	82.3
19 years	4.2	12.0	92.7	92.9	94.6	73.0
20 years	6.7	15.5	92.6	92.1	89.1	62.8
21 years	9.4	18.2	92.3	90.8	81.0	54.4
22 years	12.5	20.8	91.8	89.0	72.8	46.2
23 years	15.3	21.3	90.9	86.3	62.9	38.7
24 years	15.9	20.9	89.6	82.8	54.3	32.9
25 years	17.0	18.9	88.0	78.5	46.9	28.6
26 years	17.3	16.0	85.9	73.7	40.8	25.1
27 years	17.3	13.3	83.4	68.9	35.0	22.0
28 years	17.1	11.7	80.3	64.4	30.6	20.1
29 years	16.8	10.7	76.6	59.9	26.2	17.7
30 years	15.9	9.6	72.3	55.3	25.2	17.9
31 years	13.1	8.5	67.5	50.8	21.0	14.7
32 years	11.7	7.7	63.0	46.4	20.9	14.7
33 years	10.5	6.8	58.5	42.1	18.6	13.0
34 years	9.3	5.9	54.1	38.0	17.2	12.6
35 years	8.2	4.9	49.7	34.3	15.3	11.2
36 years	7.2	4.4	45.6	31.0		
37 years	6.3	3.9	41.6	27.9		
38 years	5.5	3.5	38.1	25.2		
39 years	4.9	3.0	34.8	22.6		
40 years	4.5	2.7	31.7	20.2	[3]12.6	[3]9.5
45 years	2.5	1.5	19.1	11.3	[3]11.2	[3]8.6
50 years	1.5	0.8	11.1	6.1	[3]11.0	[3]8.7
55 years	0.9	0.4	6.2	3.2	[3]10.8	[3]8.7
60 years	0.5	0.2	3.3	1.6	[3]10.5	[3]9.3
65 and over	—	—	1.9	0.8	9.8	9.3

[1] Per cent of persons single at beginning of year of age who marry during the year. This figure indicates the chance of marriage within one year from attaining the specified age.

[2] Per cent of persons single at beginning of year of age who marry in that year and all later years. This figure indicates the total chance of marriage for persons who have attained the specified age.

[3] Per cent single in age group 40–44, 45–49, etc.: data for single years not available.

cities combined increased from 408,989 in 1939 to an all-time peak of 594,908 in 1942, and then fell steadily through 1943 and 1944. The annual total of 513,147 reported for 1944 was still 25.5 per cent higher, however, than that for 1939; and by reason of a fairly rapid increase in the monthly figures for the last half of the year, the total for 1945 reached 568,713, or within a few per cent of the 1942 maximum. Changes in the estimated number of marriages performed in the United States as a whole follow the same pattern as the recorded changes in the large-city figure, with a maximum in 1942, and decreases in 1943 and 1944, and a substantial increase indicated by preliminary figures for 1945. The data for both the United States and the large cities are summarized in Table 8.

MARRIAGE PROSPECTS OF SINGLE MEN AND WOMEN, BY AGE

The Census Bureau has recently compiled tables based on marriage and death statistics, showing the chances of marriage year by year and the total chances of eventual marriage for persons of each age. Significant figures based on these tables are summarized in Table 9.

The first two columns of the summary table indicate, year by year, the "normal" chances of marriage within a year's time for single persons attaining successive years of age, the first column giving figures for males and the second for females, based on data for the period 1920 to 1939. According to these figures, the year of age in which the largest percentage of single women are married is 23 and for single men, 26 or 27. As indicated, 21.3 per cent of the single women attaining age 23 are married within a year, and likewise 17.3 of the single men attaining age 26. From these high points the percentages married in the current age year decline rather slowly with increasing age, dropping below 8 per cent for women at age 32 and for men at age 36. It should be noted, however, that these percentages are based on the rather rapidly declining number of men and women remaining single. This decline is indicated by the figures in the last two columns of the summary table.

The approximate percentage of the whole number of persons of a given age who marry within any specified age-year may be obtained by multiplying the percentage which appears in the first section of the table by the percentage single shown in the third section. For example, the figures indicate that 5.9 per cent of the single women aged 34 marry within the year, but since these single women constitute only 12.6 per cent of the whole number of 34-year-old females, the

TABLE 10

MEDIAN NUMBER OF YEARS OF SCHOOL COMPLETED BY 10-YEAR-OLD NATIVE WHITE BOYS AND GIRLS, BY MONTHLY RENTAL VALUE OF HOME: 1940

Area and Sex	Total	Monthly Rental Value of Home						
		Under $10	$10 to $14	$15 to $19	$20 to $29	$30 to $49	$50 to $74	$75 and Over
United States								
Urban and rural-nonfarm:								
Boys	4.2	3.7	4.0	4.2	4.3	4.4	4.5	4.6
Girls	4.4	3.9	4.2	4.3	4.4	4.5	4.6	4.7
Urban:								
Boys	4.3	3.6	4.0	4.2	4.3	4.4	4.5	4.6
Girls	4.4	3.8	4.2	4.3	4.5	4.6	4.6	4.7
Rural—nonfarm:								
Boys	4.0	3.7	4.0	4.2	4.3	4.3	4.4	4.5
Girls	4.2	4.0	4.3	4.3	4.4	4.5	4.5	4.6
The North								
Urban and rural-nonfarm:								
Boys	4.3	4.0	4.1	4.2	4.3	4.5	4.5	4.6
Girls	4.5	4.3	4.3	4.4	4.5	4.6	4.7	4.7
The South								
Urban and rural-nonfarm:								
Boys	3.9	3.4	3.8	4.0	4.2	4.3	4.4	4.5
Girls	4.1	3.7	4.1	4.2	4.3	4.5	4.5	4.5
The West								
Urban and rural-nonfarm:								
Boys	4.2	3.6	3.9	4.1	4.3	4.4	4.5	4.4
Girls	4.3	3.8	4.2	4.2	4.4	4.5	4.6	4.7

TABLE 11

10-YEAR-OLD NATIVE WHITE BOYS AND GIRLS IN URBAN AND RURAL-NONFARM AREAS IN THE UNITED STATES BY YEARS OF SCHOOL COMPLETED AND MONTHLY RENTAL VALUE OF HOME: 1940

Sex and Years of School Completed	Total	Monthly Rental Value of Home							
		Under $10	$10 to $14	$15 to $19	$20 to $29	$30 to $49	$50 to $74	$75 and Over	Not Reported
Boys	750,760	130,100	96,040	96,420	159,740	158,840	59,000	31,940	18,680
None*	5,760	2,740	780	440	440	260	220	180	700
1 year	17,360	9,640	2,800	1,480	1,620	780	160	80	800
2 years	68,860	24,080	12,600	9,500	10,600	7,680	1,440	640	2,320
3 years	208,420	43,020	31,140	30,340	44,120	37,680	11,960	5,260	4,900
4 years	310,140	36,700	35,300	38,720	71,960	75,240	29,760	16,160	6,300
5 years	116,620	11,580	11,480	13,280	26,040	31,160	12,680	7,840	2,560
6 or more	18,260	1,620	1,280	1,980	3,960	4,880	2,380	1,580	580
Not reported	5,340	720	660	680	1,000	1,160	400	200	520
Girls	728,140	125,760	93,260	94,500	154,140	156,160	57,900	29,760	16,660
None*	5,840	2,300	640	480	680	680	260	160	640
1 year	10,860	6,320	1,500	1,100	880	340	120	60	540
2 years	42,800	16,880	8,000	5,780	5,860	3,800	780	320	1,380
3 years	174,520	39,040	27,180	25,560	36,400	28,980	8,880	4,180	4,300
4 years	329,980	44,120	39,160	42,560	73,540	79,840	29,840	14,700	6,220
5 years	136,680	14,040	14,600	16,020	30,800	35,560	14,840	8,220	2,600
6 or more	22,580	2,280	1,740	2,420	5,180	5,860	2,740	1,880	480
Not reported	4,880	780	440	580	800	1,100	440	240	500

* Less than one year of school completed.

number who marry in this year will form only 0.7 per cent of the entire 34-year age group.

The summary table shows also, in the third and fourth columns, the percentage of those persons remaining single at any given age who may expect ever to marry, this being the sum of the numbers expected to marry in the current year and all later years. This figure stands at a maximum at the beginning of what might be considered the marriageable ages, 19 years for males and around 16 years for females. Thereafter, the probability of eventual marriage decreases, slowly at first and then rapidly, although it should be noted that the number of single persons to whom the percentages apply becomes very small after the first 15 or 20 years of the series. By age 65, less than one out of 100 spinsters and less than two out of 100 bachelors may expect to marry, but at this age only about 10 per cent of the population, either male or female, remains single.

EDUCATION BY MONTHLY RENTAL VALUE OF HOME

Some indication of the relation between educational attainment and family income may be obtained from data based on the 1940 Census, in which the number of years of school completed is shown for school ages, year by year, classified in accordance with the monthly rental value of the home in which the children lived. Monthly rental value of home has proved to be a fairly satisfactory index of family income, though figures are available only for urban and rural-non-farm homes. By way of illustration, data are presented in Tables 10 and 11 for the educational attainment of boys and girls 10 years of age in various areas, classified by monthly rental value of home. In Table 10 the results of the classification are summarized in the form of medians, the median representing the number of years of school completed by the boy or girl who would stand at the middle of the series if the whole number were arranged in order according to educational attainment. Table 11 shows the actual distribution of the whole number of 10-year old native white boys and girls in urban and rural-non-farm areas in the United States.

In making any comparisons between the medians shown in Table 10 and the distribution shown in Table 11, it is necessary to keep in mind the fact that the distribution is in terms of completed years, while the medians are expressed in decimals representing tenths of a year. For example, the number of persons shown as having completed four years of school includes not only those who have completed exactly four years but also all those who have completed, in addition, any fraction of a year—that is, up to 4.9 years. A median of 4.4, then, does not indicate a point beyond the limits of the four-year group, but rather a position within that group.

The relation between family income as indicated by monthly rental value of home and educational attainment stands out clearly in the series of medians, the totals for ten-year-old boys indicating 3.7 years of school completed in the lowest income group and 4.6 years in the highest income group, with similar relations in the figures for girls. The differences in the medians shown for urban areas and rural-non-farm areas are, in general, rather small, this resulting partly, perhaps, from the fact that, for a given rental value, better home accommodations can be obtained in rural areas than in large cities.

SOURCES OF ADDITIONAL DATA

Additional information on the topic discussed just above is contained in a brief population report entitled "Educational Attainment of Children by Rental Value of Home."

Current estimates of labor force, employment, and unemployment, are contained in the "Monthly Report on the Labor Force."

Current estimates of population are issued from time to time; a release giving estimates by states for July 1, 1945 is to be available early in 1946.

A circular describing both the reports of the 1940 Census and the current material, which has been published since the Census, may be obtained upon request from the Bureau of the Census, Washington 25, D. C.

RACE CONDITIONS IN THE UNITED STATES

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GENERAL

The ending of the war brought a crucial period with respect to race relations in this country. Immigration quotas are being examined by a Congressional committee with the view toward possible changes of policy. Some 100,000 Japanese are now trying to re-establish a normal life and livelihood after being uprooted from their homes, placed in relocation centers for several years, and then released. Thousands of Negroes who advanced to good jobs in war industries are wondering how they will fare in peacetime industry. Hundreds of thousands of Negro youth are being demobilized and are beginning life anew as veterans of the Second World War. We have yet to see to what extent our treatment of minority groups will be consistent with the principles of democracy for which we fought.

IMMIGRANT ADMISSIONS

According to provisional figures reported in the December, 1945 issue of the *Monthly Review* of the Immigration and Naturalization Service, 38,119 immigrant aliens were admitted to this country during the fiscal year ended June 30, 1945, a substantial increase over the preceding year, when only 28,551 were admitted.

Not since the fiscal year ended June 30, 1930, have as many as 100,000 immigrant aliens been admitted to the United States in any one year. In the summer of that year, consuls were instructed to deny visas to individuals deemed likely to become public charges, a ruling prompted by depression conditions in this country. As a result, the number of admissions dropped sharply and reached the lowest level in over a century in 1933, when only 23,068 were admitted. With the accession of Hitler in Germany and the consequent fleeing of refugees from Nazi-dominated countries, the number of aliens admitted to this country climbed gradually and reached a peak of 82,998 in 1939. The Second World War brought another sharp curtailment, especially after this country became involved, and during 1943 the number of admissions was only 23,725, or only slightly higher than the low figure for 1933.

GEOGRAPHIC ORIGINS

The decrease in the total flow of immigration since the outbreak of the war has been accompanied by a marked change of origins from Europe to the Western Hemisphere. In 1939, European countries were given as the last permanent residence by 76 per cent of the immigrant aliens admitted to this country, and countries of the Western Hemisphere were reported by only 21 per cent. By 1943, virtually these same percentages were reversed, *i.e.,* 21 per cent reported European countries and 77 per cent reported countries of the Western Hemisphere. In 1945, only about 16 per cent of the immigrant aliens reported European countries and 75 per cent reported countries of the Western Hemisphere.

To take specific countries, 33,515 or 40 per cent of the total immigrant aliens admitted in 1939 reported Germany as the last permanent residence. Only 238 gave this report in 1944 and 172 in 1945. This was a natural consequence of the war. The proportion of immigrant aliens reporting Canada as the country of last permanent residence was only 13 per cent in 1939, 40 per cent in 1943, 34 per cent in 1944, and 29 per cent in 1945. In absolute numbers, however, there was a decline from 10,501 in 1939 to 9,571 in 1943, and then an increase to 9,821 in 1944 and to 11,079 in 1945. The numerical and proportionate importance of immigrant aliens from Mexico is also larger than in 1939. At that time, only 3 per cent of the immigrant aliens reported Mexico as the country of last permanent residence. This proportion was 18 per cent in 1943, 23 per cent in 1944, and 18 per cent in 1945. The absolute numbers were 2,640 in 1939, 4,172 in 1943, 6,598 in 1944, and 6,702 in 1945.

The above data concerning last permanent residence exaggerate somewhat the declining proportionate importance of European origins since 1939. Actually, some of the immigrants reporting Western Hemisphere countries as last permanent residence were secondary migrants from Europe. Nevertheless, the distributions by country of birth give essentially the same story. In 1939, 82 per cent of immigrant aliens were natives of Europe, and 16 per cent were natives of the Western Hemisphere. In 1943, the respective proportions were 38 and 60; in 1944, they were 30 and 66; and in 1945, they were 27 and 66. In 1939, only 10 per cent of the immigrant aliens were natives of Canada, as compared with 30 per cent in 1943, 25 per cent in 1944, and 23 per cent in 1945. Natives of Mexico comprised 3 per cent in 1939, 17 per cent in 1943, 22 per cent in 1944, and 17 per cent in 1945. It should be emphasized, too, that the above figures relate to Mexican immigrant aliens entering the country through regular immigration channels for declared permanent residence. This immigration is quite apart from the special importation of Mexicans since 1943 for temporary residence as farm laborers and track workers, discussed in a later section.

DEPARTURES AND DEPORTATIONS

The number of emigrant aliens departing during the fiscal year ended June 30, 1945 was 7,442. Like the wartime trend in number of admissions, the number of emigrant aliens departing reached its lowest level (5,107) in 1943 and has since increased. Of the total emigrant alien departures in 1945, 41 per cent were destined for Great Britain, 16 per cent for Mexico, and 8 per cent for Canada. The number of deportations during 1945 was 11,270. Over 8,000 of these were Mexican nationals.

NATURALIZATION

The number of naturalizations during the fiscal year 1945 was 238,450, a sharp cut back from the all-time maximum of the preceding year when the total civilian and military naturalizations reached 441,979. The reversal in 1945 was forecast by immigration authorities a year earlier, since the large number of naturalizations in 1944 represented in part an elimination of arrearages, since recent immigration had been low in volume, and the number of declarations of intention to file petitions dropped to the lowest point on record in 1944, when the number was only 42,368 as compared with 115,664 in 1943.

Class instruction for aliens in the history, government, and basic ideologies of the United States has long been part of the educational program of the Immigration and Naturalization Service. Since the beginning of the war, home-study courses have been organized to meet the needs of aliens who live in rural areas where no class facilities are available and those otherwise unable to attend organized classes. By July 1, 1945, the program was in operation in 38 states, and in six others plans were being made to establish such home-study courses in the fall.

RESIDENT ALIEN POPULATION

As a consequence of the large volume of naturalizations and the small volume of immigration, the number of resident aliens in this country declined sharply during the war. A total of 4,889,770 aliens registered under the compulsory national registration between Aug. 27, and Dec. 26, 1940. A recent estimate by Ernest Rubin of the Immigration and Naturalization Service places the number at about 3,050,000 as of July 1, 1945, indicating a decline of about 38 per cent. Rubin states that during the period under consideration, the number of aliens "was increased by a net immigration of 110,000 and decreased by over 1,427,000 naturalizations, 374,000 deaths, and 148,000 from other causes" (*Monthly Review*, October, 1945).

ADMISSION OF FOREIGN STUDENTS

Section 4 (e) of the Immigration Law of 1924 provides for the admission of students. These are classified as non-immigrants since they are admitted for only temporary residence. From July 1, 1924, through June 30, 1945, over 35,000 alien students took advantage of this provision, according to the November, 1945, *Monthly Review* of the Immigration and Naturalization Service. As with total immigration to the United States, student admissions dropped to a low level (877) in 1933 but then rose each year until a pre-war maximum of 2,451 admissions was attained in 1938. From that date, the annual number declined consistently until 1943, when 1,021 were admitted; this was followed by an abrupt rise to 1,643 in 1944 and to 2,866 in 1945. The number for 1945 included 2,010 from countries of the Western Hemisphere, 559 from Asia, 244 from Europe, and 53 from other places.

The constituency of alien students has changed markedly since the inception of the program. During fiscal years 1925-1933, about 56 per cent were natives of European countries, but during 1934-1939 this proportion was only 35 per cent, and from 1940 through 1945 it dropped to 15 per cent. The proportion of Asiatic students also declined, being 33 per cent, 25 per cent, and 15 per cent, respectively. In contrast, the proportion of the foreign students from Canada, Newfoundland, and Latin-American countries increased from 6 per cent in the 1925-1933 period to 36 per cent during 1934-1939, and to 67 per cent during 1940-1945. Over the entire period, however, China sent more students (5,168) than any other single country. Only in 1943 did the annual number of immigrant students of Chinese birth fall below 100. Japan sent 150 to 250 per year during 1926-1932, but never as many as 100 per year after 1932.

PRESIDENT TRUMAN'S PLAN TO AID THE ENTRY OF REFUGEES

On Dec. 22, 1945, President Truman announced his plan to aid displaced persons and refugees now in the American zones of occupation in Europe by admitting a maximum of 3,900 per month to this country. He stated that this number is the approximate quota allotted under present laws to countries of "central and eastern Europe and the Balkans," so no revision of the law would be needed. To expedite the plan, the President requested special help from the Secretaries of State and War, the Attorney General, the War Shipping Administrator, the Surgeon General of the Public Health Service, and the Director General of the United Nations Relief and Rehabilitation Administration. Representatives of these officials have already gone to Europe to make preliminary preparations. The President expressed the hope that the plan would be in actual operation by the spring of 1946 and that the admissions would be distributed fairly by faith, creed, and nationality, with special preference being given to orphaned children.

IMPORTED FOREIGN WORKERS

The end of the war and the return of servicemen to civilian life bring to a close the wartime emergency program under which the United States has been importing workers from certain Western Hemisphere countries to relieve the labor shortage. (See previous issues of THE AMERICAN YEAR BOOK.) According to the latest report from the Immigration and Naturalization Service, 354,896 laborers had been admitted up to June 30, 1945. Since many have been repatriated, the number remaining at the end of the fiscal year was 181,757; of these, 99,434 were agricultural laborers, 64,990 were railway track workers, and 17,333 were in industry (*Monthly Review,* December, 1945).

During 1945, as in previous years, the number of admissions varied from month to month, as contracts expired and labor needs changed. On Dec. 1, 1945, there were 35,892 foreign workers employed in agriculture: 25,324 Mexicans, 5,367 Jamaicans, 4,294 Bahamians, and 907 Newfoundlanders. As in former periods, most of the Mexicans were found in California, the Jamaicans in the East, particularly in Florida and in Ohio, and Michigan; the Bahamians in Florida and the Newfoundlanders in New England and New York (Bureau of Agricultural Economics, Department of Agriculture: *Farm Labor,* Dec. 14, 1945).

The admission of Mexican nationals for work on the railroads proceeded at an increased tempo during the first six months of 1945. The quota of Mexicans who might be employed in railroad work at any one time was raised from 50,000 as of July, 1944, to 75,000 as of March, 1945. The number of employers using Mexicans rose from 29 to 35, and the imported workers were allowed to engage in a wider variety of tasks connected with the railroads. At the end of August 1945, about 135,300 Mexicans had been brought in for railroad work since the beginning of the program in 1943. Contracts in effect at the end of that month numbered approximately 59,400 (Railroad Retirement Board: *Monthly Review,* October, 1945).

In the industrial field, a total of more than 20,000 West Indian Negro workers, most of them from Jamaica, were brought into the country by the War Manpower Commission. These workers were placed in foundries and other industrial establishments on the East Coast and in Wisconsin, Ohio, and Illinois (Sadler, G. E.: "Wartime Utilization of Jamaicans in U. S. Industrial Establishments," *Monthly Labor Review,* November, 1945).

Since the end of hostilities with Japan, recruitment of laborers has been suspended, and plans have been made for the repatriation of workers already in this country as soon as their contracts expire. Many of the workers, lured by the prospect of higher wages, wider economic opportunities, and higher standards of living, are unwilling to return to their native land and now wish to remain in this country. However, the agreements signed by the United States and the countries involved stipulate clearly that all workers are to be returned at the expiration of their labor contracts.

Mexican nationals have played by far the most important part in this program of imported labor. The history, administration, and results of the program are described in a report by Robert C. Jones, "Mexican War Workers in the United States," published by the Pan American Union in 1945. In summarizing the results of this wartime undertaking, Jones states: "The contribution [of the Mexican laborers] has been even more important than the number of workers might indicate, for the men have been used to meet peak needs where no other source of labor was immediately available. . . . The programs of recruiting and transporting Mexican nationals to the United States to help in agricultural production and railroad maintenance-of-way work during the period of the war have deservedly been described as important steps in inter-American cooperation."

The Railroad Retirement Board, the agency responsible for the handling of railroad workers, also feels that "the contribution of the Mexican national workers to the United States war effort can not be over-estimated. The willingness of . . . our friends across the border to offer their services to United States railroad employers has helped to solve one of the country's biggest problems. Without the use of Mexican national manpower, United States railroads would have found it difficult, if not impossible, to meet the increased responsibilities thrust upon them by a world at war" (Railroad Retirement Board: *Monthly Review,* June, 1945).

RESETTLEMENT OF JAPANESE EVACUEES

The closing of the war relocation centers and the resettlement of the Japanese who were evacuated from the West Coast in 1942 have been natural results of the War Department's revocation of the order excluding persons of Japanese ancestry from West Coast military areas, and also of the Supreme Court's decision that Japanese Americans of unquestioned loyalty could not be detained in relocation centers. At the time that the revocation of the exclusion order became effective, Jan. 2, 1945, there were about 80,000 persons still concentrated in eight relocation centers and in Tule Lake, the center in which were located the disloyal Japanese and those who had expressed a wish to be returned to Japan. (This group has now been placed under the jurisdiction of the Department of Justice.)

The closing of the relocation centers and the resettlement of the evacuees was virtually completed by the end of 1945. According to a statement contributed by Dillon S. Myer, Director of the War Relocation Authority: "The War Relocation Authority closed the last of its eight remaining relocation centers November 30, 1945, carrying out its announced intention of doing so within a year of the lifting on January 2, 1945, of the Army's exclusion of persons of Japanese ancestry from the West Coast.

"Before lifting of the exclusion, nearly 20 per cent of those now relocated away from the evacuation area already had settled in Illinois, between 5 and 10 per cent in Colorado, Utah and Ohio, with less than 5 per cent in each of the other states and the District of Columbia. Eastern resettlement has been most heavily concentrated in and near New York, Philadelphia, Bridgeton, N. J., Detroit, Chicago, Minneapolis, Denver and Salt Lake City.

"Of the original 110,000 evacuated

from California, Oregon, Washington and southern Arizona, about 45,000 returned to the West Coast states directly from Centers. Another 5,000 had returned by the end of 1945 from more easterly localities to which they had relocated before the lifting of the ban. The rest of the relocated population remained east of the Sierra Nevadas, and at the first of the year some 7,000 were still at Tule Lake, the WRA-operated 'segregation' center in northern California. The number of these eligible for relocation had not been determined by the Department of Justice."

Since the exclusion ban was lifted both evacuees and their Caucasian friends have expressed the fear that the return of Japanese to the West Coast would result in a wave of prejudice and hostility similar to the anti-Japanese hysteria of 1942. Opposition to their return has centered chiefly in the farming areas, in the produce-marketing interests of Los Angeles and Seattle, and in certain political circles. According to Myer: "Small but highly organized groups opposed the return of evacuees to the Coast, particularly during the spring and early summer of 1945. Among groups dealing in agricultural produce, commercial boycotts were widespread against returnees in some localities. In May and June of 1945, when substantial numbers of evacuees began to come back, hostility reached a peak. A wave of terrorism swept California, including some 39 instances of arson, shooting attempts, dynamiting, property damage and threats of physical violence. Law enforcement in some communities tended to be lax in counteracting this terrorism, until protest against this type of opposition toward returnees became nationwide. Fair-minded groups, individuals, and newspapers condemned the intolerance through resolutions, public statements, letters, and editorials. Boycotts and minor instances of active hostility tapered off but did not entirely cease by the end of 1945. Isolated and sporadic instances of discrimination remained a problem for Issei and Nisei in spite of a somewhat improved general attitude toward them on the Coast. A major factor in countrywide acceptance of America's Japanese was widespread knowledge that 22,500 Nisei, over half of them from the mainland, had served with the American armed forces on every fighting front. One of their outfits, the 442nd Regimental Combat Team, won national acclaim as 'the most decorated unit in the military history of the United States.'" In recent months the public has also become aware of the invaluable assistance rendered by those Nisei who were trained at a military intelligence language school at Fort Snelling, Minnesota, and who accompanied the front lines in the Pacific.

Evacuees returning to the West Coast have faced many difficulties and hardships in their attempt to regain a normal place in civilian life. Galen M. Fisher lists these obstacles as "public hostility, boycotts, housing shortage, job discrimination, official denial of business and professional licenses, extortionate insurance premiums, legal barriers, lack of funds, loss of ambition and enterprise due to age, frustration, and idleness in the Centers. . . . The most formidable obstacle to resettling has been the housing shortage" ("Resettling the Evacuees," *Far Eastern Survey,* Sept. 26, 1945).

Among the evacuees located in the Tule Lake Center there still remain some who may be eligible for relocation. Myer states: "WRA planned to relocate all evacuees who were eligible from Tule Lake, the segregation center at Newell, California, by February 1, 1946. At the same time Immigration and Naturalization Service officials were processing aliens who wished to return to Japan and Nisei who had renounced their United States citizenship according to the Congressional law of July 1944. Some renunciants had accepted transfer to Japan during 1945. Others still had cases pending in court at the end of the year, contending that renunciation was made under duress. The Department of Justice late in 1945 issued regulations permitting review of expatriates' dockets upon the individual request of the renunciants."

Since the beginning of the resettlement program, one of the major objectives has been the distribution of the Japanese more widely throughout the nation, since, in 1940, 88.5 per cent of all Japanese in the United States were living in the three Pacific Coast states. The WRA authorities believe that the condition of Japanese Americans will be improved if they are not concentrated in a few cities. In Myer's opinion: "The net result of the years and events between evacuation and the return of the evacuees to normal American communities probably has been an overall improvement in the status of America's Japanese. About half of those originally removed from the West Coast resettled in the Midwest and East, in communities which had previously had little knowledge of this particular minority. The wartime movement of these people to relocation centers and their later resettlement made the problem the nation's and not just that of the West Coast states.

"On the whole the future for second-generation Americans of Japanese ancestry appeared promising in the light of greater public understanding of them and their problems. Leaders among the Nisei are aware that there are still a number of obstacles to be overcome before Japanese Americans receive full American recognition. However, evacuation and the consequent program of relocation have speeded the assimilation of America's Japanese by helping to give them a new attitude toward their country, as well as creating new sympathy toward Issei and Nisei. Relocation, particularly away from the former West Coast 'Little Tokyos,' tended to break up the old-country cultural pattern of family solidarity, and obedience to the family head. Younger Japanese Americans in many instances pioneered to new communities ahead of Japanese-born parents, and in a number of cases have remained permanently in the East while the older members of the family returned to the Coast. It is probable that this independence has matured the average Nisei more rapidly than would have been expected under other conditions."

Fundamental aspects of the relocation program are examined in Alexander H. Leighton's recent account of the months of tension in the Poston Relocation Center (Arizona) the forces that brought about a general strike by the evacuees, and the leadership that quieted the storm. This study provides valuable documentary evidence of the psychological and sociological forces at work in the relocation centers (Alexander H. Leighton: *The Governing of Men*, Princeton University Press, 1945).

Successful resettlement of the evacuees may do much to allay the suspicion and fear felt by minority groups who have been aroused by the treatment of Japanese Americans in this country since Dec. 7, 1941. Although the Supreme Court ruled that the evacuation was constitutional, the decision was not unanimous. A forceful criticism of the ruling was expressed by Prof. Eugene V. Rostow of the Yale University law department: "As time passes, it becomes more and more plain that our wartime treatment of the Japanese and the Japanese-Americans on the West Coast was a tragic and dangerous mistake. That mistake is a threat to society, and to all men. Its motivation and its impact on our system of law deny every value of democracy. . . . The evidence supports one conclusion only: the dominant element in the development of our relocation policy was race prejudice, not a military estimate of a military problem. . . . [The Supreme Court] failed to uphold the most ordinary rights of citizenship, making Japanese-Americans into second-class citizens, who stand before the courts on a different legal footing from other Americans. It accepted and gave the prestige of its support to dangerous racial myths about a minority group, in arguments which can easily be applied to any other minority in our society" (Eugene V. Rostow: "Our Worst Wartime Mistake," *Harper's Magazine*, September, 1945).

THE NEGRO IN INDUSTRY

The Second World War brought better employment opportunities to Negroes in this country than ever before, according to *Racial Aspects of Reconversion*, a memorandum prepared for the President of the United States by the National Urban League, Aug. 27, 1945. This situation is attributed jointly to "(1) the demand for labor in essential industry; and (2) the operation of manpower controls, particularly anti-discrimination measures." Citing the Bureau of Labor Statistics, the report states that approximately 1,000,000 Negroes were added to the civilian labor force between April, 1940 and November, 1944, increasing the number of employed Negro men and women from 4,400,000 to 5,300,000. Furthermore, the League estimated that some 30 per cent of the Negro workers were in skilled and semi-skilled occupations. Before the war all but a small proportion of Negro wage earners were in unskilled and domestic services.

Much of the Negro's improved employment status, however, was found in temporary war industries. The National Urban League's memorandum to President Truman cited War Manpower Commission figures to indicate that 726,000 Negroes were employed in all industries engaged in the manufacture of materials of war. Of these, 182,000 were in shipbuilding, 142,000 in ordnance, 107,000 in aircraft, 60,000 in basic iron and steel, 22,000 in basic nonferrous metals, 19,000 in communications equipment, 16,000 in rubber, and 178,000 in other munitions. Naturally, these industries underwent the earliest and heaviest cutbacks with the end of the war. Hence, the Negro's place in industry after the period of reconversion is uncertain. The League's memorandum emphasized that the Negro will suffer disproportionately in unemployment unless the goal of full employment is realized and unless the wartime provisions for fair employment practice are continued.

THE NEGRO IN FEDERAL EMPLOYMENT

Negroes also made gains in Federal employment during the war, according to a report of the Committee on Fair Employment Practice. This report is based on the Committee's survey of 57 government agencies and departments with a total personnel of 2,295,614, or 85 per cent of all full-time government employees as of March 31, 1944. Negroes comprised 11.9 per cent of all employees in the 57 agencies and departments. They made up 19.2 per cent of the workers in departmental services (located chiefly in Washington) and 11.2 per cent of the employees in field service (*Survey Graphic*, April, 1945, p. 120).

In an article "Negro Employment in the Federal Government" (*Phylon*, 1945, No. 4, pp. 337-346), J. A. Davis and C. L. Golightly compare the FEPC figures for 1944 with figures from other sources for 1938. Thus, as compared with 11.9 per cent in 1944, Negroes constituted only 9.9 per cent of the total government employees listed in the 1938 *Annual Report* of the Civil Service Commission. The Negro's gain in occupational status has been even more impressive, especially in so far as increasing proportions of workers of clerical status are concerned. According to L. J. W. Hayes' study of 1938, about 90 per cent of the Negro Federal government workers in Washington in that year were classified as "custodial," 9.5 per cent as "clerical—administrative and fiscal," and 0.5 per cent as "subprofessional and professional." In contrast, according to the FEPC survey of 1944, only about 40 per cent of the Negroes in departmental service (located chiefly in Washington) were classified as "crafts protective and custodial," about 10 per cent as "clerical-mechanical," 49 per cent as "clerical—administrative and fiscal," and 1 per cent as "subprofessional and professional."

As in industry, however, the postwar position of the Negro in civil service may be considerably less favorable than that of 1944, since the largest numerical and occupational gains were made in the temporary wartime agencies and in "nonclassified" or temporary rather than in permanent appointments.

WARTIME SHIFTS OF NEGRO POPULATION

The National Urban League has estimated that some 750,000 Negro civilians were involved in interstate migration during the five years 1940-1944. Of these "more than 100,000 are estimated to have moved to southern industrial centers from other urban and rural communities in the South. Approximately 300,000 southern Negro workers moved to the border states and northern industrial communities. More than 100,000 went from the northern border states to other areas. The West Coast gained over 250,000 Negroes from the rural and urban South, the Mid-west and the East. Approximately 200,000 of this total were from the South" (National Urban League: *Racial Aspects of Reconversion,* April 27, 1945).

In regard to the permanence of this redistribution of Negro population, the same report states that the "proportion of Negroes who will remain in centers of in-migration will probably be significantly higher than the average for all in-migrants." Furthermore, "surveys reveal that a disproportionately large ratio of Negro veterans, 75 per cent of whom are from the South, do not desire to return to their former places of residence. The war has thus intensified the urbanization of the Negro and dispersed the population more broadly."

RACE RELATIONS

Among the events of 1945 that had an important bearing on race relations, the most outstanding were, of course, the end of the war and the first steps toward demobilization and reconversion. The fear of post-war economic insecurity among both whites and Negroes has tended to create more friction between the races. The problems are intensified by the congestion of Negroes in areas and cities where they have migrated in response to wartime labor demands, by increasing unemployment, an acute housing shortage throughout the country, and the demobilization of thousands of service men who are trying to establish themselves in normal civilian life. It is reported that these factors have already increased anti-Negro bias on the West Coast, where comparatively few colored people were living before the war.

The fall of 1945 was marked by racial conflicts between white and colored students in public schools of Gary, Chicago, and New York City. In Gary and Chicago, white pupils carried out strikes in protest against the presence of colored students and demanded that Negroes be placed in separate schools. In New York City, a personal fight between a Negro and a white youth in Franklin High School led to a series of racial clashes, but the disturbance was soon controlled. All these cases were symptomatic of the restlessness and insecurity prevalent among many young people during the trying period of war, and of underlying community fears and attitudes.

It has been estimated that at the close of the war nearly 1,000,000 Negroes were or had been in uniform. Although there were many instances of prejudice, discrimination, and open conflict between white and colored troops during the war years, on the whole the status of Negroes in the armed forces saw some improvement. Before the end of the war, there were instances of white and Negro men serving in the same combat units of the Navy, and Negroes were being admitted to a wider variety of occupations and skills in the Navy. White and colored troops were also reported serving together in some infantry divisions in Europe. The status of the Negro in the Navy and Army is, of course, only part of the larger problem of relations between whites and Negroes in the entire country. The return of these colored veterans to civilian life intensifies the need for better understanding and cooperation between the two races.

Efforts to bring about such cooperation are the principal objectives of numerous private and official agencies and organizations. One of the most important of these is the Southern Regional Council, which was established in February, 1944, as an outgrowth of the Commission on Interracial Cooperation and as the result of a series of conferences held during 1942 and 1943. The Council is composed of members of both races and has developed its program in the belief that "any sound movement for social progress must be based on the realization that the South can not go far without democratizing its social order and giving all of its human resources a chance to develop their potentialities. The Council's functions may be summarized as follows: (1) clearing-house and coordinating work with numerous agencies working on Southern problems; (2) research and survey to determine the facts and the state of public opinion as a basis for sound social action; (3) educational activities through a monthly paper, *The Southern Frontier,* and through pamphlets, press, radio, conferences, and personal contacts; (4) consultative services to private or official agencies; (5) constructive action at every possible point on the social, economic, political and racial problems of the South" (Southern Regional Council: *The Southern Regional Council; Its Origin and Purpose*).

Efforts are also being made to improve relations between native Americans and Spanish-speaking people in the United States. The Office of the Coordinator of Inter-American Affairs has had a Spanish-Speaking Peoples Section. This Section has recently been transferred to become a Division in the Institute of Ethnic Affairs, Inc. The Division has sought to stimulate and encourage local leadership, focus attention on the special problems of Spanish-speaking people in the United States, and cooperate with other agencies working with this group. For the most part, the program of the Division has taken the form of grants-in-aid to establish institutions of the states having large Spanish-speaking populations. In carrying out its program the Division has felt that development of mutual understanding and cooperation between this group and native Americans is of significance for the country's relations with other American nations (Jane W. Pijoan: *The Spanish Speaking People of the United States*).

COMMITTEE ON FAIR EMPLOYMENT PRACTICE

The status and the future of the Committee on Fair Employment Practice were still uncertain at the close of 1945. Although the idea of a permanent Fair Employment Practice Commission received strong support during the political campaign of 1944, both from the Presidential candidates and from numerous aspirants for political office, Congress failed to enact such legislation during 1945. However, the calendars of both House and Senate have contained bills on this subject. Soon after the convening of Congress in January, 1945, several bills were introduced in the House providing for a permanent Fair Employment Practice Commission and were referred to the Committee on Labor. In February, Representative Mary T. Norton, of New Jersey, on behalf of the majority of the Committee on Labor, reported H.R. 2232, a composite of the various bills that the Committee had considered. "The purpose of the bill is 'to prohibit discrimination in employment because of race, creed, color, national origin or ancestry.' The proposed law would apply to any employer having in his employ six or more persons, who is engaged in interstate commerce; or who is under contract to the Federal Government; a labor union having six or more members and officials; and all Government agencies" (*Congressional Digest,* June-July, 1945). Employers and unions are, however, free to adjust their policies and to manage their internal affairs as they please, so long as they do not discriminate against any individual on account of color, race, creed, or national origin. Unlike the present Committee, the proposed permanent commission would have power to subpoena witnesses and enforce its directives by recourse to usual court processes in cases where arbitration had failed. A similar bill, S. 101, was introduced in the Senate by Senator Chavez of New Mexico, and was referred to the Committee on Education and Labor.

The House bill, H.R. 2232, reported out of the Committee on Labor in February, but it is being held in the Rules Committee by a tie vote on the issue of reporting it for debate. Representative Norton has filed a petition asking that the Rules Committee be discharged from further consideration of the bill. However, a bill can be brought to the floor for consideration only after such a discharge petition has been signed by 218 members, and so far Representative Norton has not secured the required number of signatures. In the Senate, the comparable bill, S. 101, was given floor priority on Jan. 17, 1946, but to date has met the usual opposition and delaying tactics of certain senators from the South.

The present Fair Employment Practice Committee is merely a temporary war agency created by Presidential Executive Order. The fight against it was renewed in the Seventy-ninth Congress when the appropriations bill for the fiscal year, beginning July 1, 1945, was being considered. The War Agencies appropriation bill was passed by the House without provision for the present FEPC, although the Bureau of the Budget had recommended an appropriation of $559,000. In the Senate, after an attempted filibuster that locked up all action on the War Agencies appropriations for several weeks, a compromise was reached whereby $250,000 was appropriated for operation of the Committee during the present fiscal year. The Committee already has had to curtail its operations because of this restricted appropriation. Throughout its history, the FEPC has been handicapped by lack of funds and by lack of power to enforce its directives, yet "it has had notable success in maintaining democratic standards of employment, in educating backward employers and unions, and in bringing into war industry thousands of sorely needed workers who otherwise would have been barred by racial or religious prejudice. The problems of the post-war period seem certain to increase, not diminish, the importance of such an agency" (*Survey Midmonthly,* August, 1945, p. 209).

Although Congressional action on the FEPC has been indecisive, anti-discrimination laws were enacted in two states during the year, and bills providing for investigation of the problem were passed by two other state legislatures. On March 12, 1945, New York set up a five-man "State Commission against Discrimination," which is empowered to prevent employers from discharging or refusing to hire workers or discriminating against them in any way on account of race, creed, color, or national origin. The Commission also has the duty of preventing labor unions from excluding, expelling, or discriminating against an individual for these reasons. The New Jersey legislature, on April 16, 1945, established a "Division against Discrimination" within the state Department of Education, composed of the Commissioner of Education and a seven-man council. In Indiana, the state Department of Labor was empowered to make studies of discrimination and methods of eliminating it, to prepare reports, and to hold hearings and make recommendations in cases of discrimination. The Utah Legislature provided that a three-man legislative investigating committee be formed to study cases of discrimination and the need for anti-discrimination legislation.

LEGISLATION AND BILLS AFFECTING MINORITY GROUPS

During 1945, no bill of major importance affecting the welfare of minority groups was passed by either house of the Seventy-ninth Congress to become law, though numerous bills dealing with immigration, naturalization, and racial groups were introduced and a few were passed by the House. One bill of interest was H.R.

3517, introduced by Representative Celler of New York and passed by the House on October 10, 1945. This bill provides that persons of races indigenous to India shall be admitted under a quota system and shall be racially eligible for naturalization. Under the provisions of the bill, an annual quota of 100 is available for all would-be immigrants belonging to races indigenous to India, regardless of where those persons are now living or in what country they were born. This bill has not been passed by the Senate.

On April 17th the House passed H.R. 776, introduced by Representative McGehee of Mississippi, providing for the naturalization of Filipinos. During the year the House also passed a bill (H.R. 714, introduced by Representative Dickstein of New York) that simplifies the immigration procedure for wives of men and husbands of women serving in our armed forces. In the field of naturalization, H.R. 511 was passed on June 28 under the sponsorship of Representative Mason of Illinois. This bill amends the Nationality Act of 1940 so that educational requirements are waived for persons who are 50 years of age or over if they have made a declaration of intention and have been residents of the United States since before 1924. The bill also simplifies the naturalization of alien parents of men and women who have been or are in the armed forces of this country.

Congressional interest in immigration centered particularly upon post-war policies and problems. The House authorized the Committee on Immigration and Naturalization to study the basic problems affecting post-war policies in these fields. Hearings were held during the year in New York, Chicago, San Francisco, and Los Angeles, and the subcommittee responsible for the hearings recommended the creation of a more permanent committee of experts who shall give careful consideration to the whole problem of immigration and naturalization.

More immediate and one-sided action was called for in various bills that were introduced in the House but not passed. Representative Izac of California introduced a bill that would prohibit the entrance for the next 30 years of any person who is a national of any country with which the United States was at war during the Second World War. Other bills provide for the reduction of quotas for stated intervals of time or for the suspension of quota immigration entirely for a certain number of years after the end of the war. Numerous bills were introduced providing for the suspension of all immigration during years in which unemployment in the United States assumes serious proportions.

Once more the House approved the anti-poll tax bill, providing for the abolition of the poll tax as a prerequisite to voting for Federal elective officers, and once more the bill has been held up in a Senate committee. One gain may be recorded, however, for during the year the poll tax in Georgia was repealed by the state legislature. At present, therefore, only seven states retain this restriction on voting—Alabama, Arkansas, Mississippi, South Carolina, Tennessee, Texas, and Virginia.

In the field of official regulations, mention should be made of important changes in visa procedure. On July 1, 1945, sole responsibility for the issuance of immigration visas to the United States was restored to American consuls abroad. Thus, the Visa Division of the State Department has discontinued its wartime control of the issuance of visas. There is a new provision in the visa regulations: the applicant for a visa must now present a permit showing that he has the permission of his home government to leave the country.

AMERICAN INDIAN AFFAIRS

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LEGAL STATUS

The Indians of the United States and Alaska number 420,720 (387,970 in continental United States, 32,750 in Alaska), and represent an expanding racial group. While the term "tribe" is not used with any preciseness of meaning, nevertheless some 200 groups exist to whom the term "tribe" is applied. These groups own property in a tribal name or exercise rights and privileges under a tribal designation.

Indian tribes are to be recognized as the remnants of once sovereign states. This is a legal view first enunciated by Chief Justice Marshall, to which later justices of the Supreme Court, members of the Congress and administrative officials generally have adhered in greater or lesser degree. The doctrine holds that any state, in placing itself under the protection of a more powerful state or nation, does not thereby cease to exist except as its existence may be limited or defined by the greater power. Indian tribes, in other words, have whatever rights of self-determination they originally had, less whatever rights have been taken away from them by the sovereign authority of the United States. In the matter of regulating law and order within an Indian tribe, for example, the United States has vested in Federal courts original jurisdiction over ten major crimes. The tribe then retains jurisdiction over those law and order matters lying outside of the ten specified crimes. In a few instances, state courts have been given jurisdiction by act of Congress, but otherwise the judicial authority remains in the tribe.

Approximately 100 Indian tribes govern their affairs under written constitutions, and a lesser number of tribes have incorporated under a Federal charter. These instruments, constitution and charter, are in many instances similar to the charters and by-laws under which municipalities operate.

Indians are also citizens of the United States and there is no inconsistency between such citizenship and membership in a tribe. This view has been repeatedly stated in court decisions. Indians are free to enter into contracts involving personal services or involving property, if that property is not held under trusteeship by the United States. Where such trusteeship exists there is usually a requirement that the Secretary of the Interior, as the officially designated trustee, join with the Indian in contracts involving property of this class.

INDIAN RESOURCES

Indian resources in land and other property suffered drastic reductions over the years. A map has been issued by the Department of the Interior showing land cessions obtained from Indian tribes from the beginning of colonization and settlement. Over 95 per cent of the total land area of continental United States was bargained for through the device of treaties, agreements, and acts of Congress authorizing purchases. The period of land cessions came to a close within the first decade of the present century, although that did not mark the end of Indian land losses. The Allotment Law of 1887 established procedures by which tribal lands, reserved to Indians by treaty and agreement, might be divided into individual parcels and fee title issued to the individual Indian. Tribal lands in excess of the area needed to supply each Indian with an allotment were then declared to be surplus and were opened for homesteading. Through these devices, lands passed out of Indian ownership at a rate of approximately

2,000,000 acres per year from 1887 to 1934. In that period the Indian estate dwindled from 138,000,000 acres to roughly 50,000,000 acres.

The record of land losses was halted with the passage of the Indian Reorganization Act in 1934, which prohibited future allotments of tribal land and authorized the Secretary of the Interior to restore the so-called surplus lands where homesteads had not been taken up, and it also authorized him to purchase lands for landless Indians.

It is necessary to have this historical background in mind in any review of Indian resources of the present day. Indian tribes and individual Indians today possess approximately 56,000,000 acres, the value of which is estimated at $260,000,000. The greater part of this area is forest and grazing land. The timber on Indian lands is estimated at 35,000,000,000 feet and valued at $90,000,000. Irrigation projects have been constructed to serve 840,000 acres of this Indian land, the cost of which was about $67,000,000. Indians owned 361,000 head of beef cattle and 50,700 head of dairy cattle, the income from which amounted to $15,000,000 in 1944.

ECONOMIC ACTIVITIES

Indian activities in food production continued to increase during this last year of the war. In addition to the acreage devoted to livestock production, approximately 400,000 acres were planted to forage crops, of which the yield was 437,000 tons, with a value of $4,800,000. Cereal crops were grown on 340,000 acres, with a yield of 4,800,000 bushels and a market value of nearly $5,000,000. Gardens and other field crops yielded an additional $5,000,000 of income.

The financing of these agricultural activities provides an interesting chapter in the year's work. Credit for Indians is supplied largely out of a revolving fund authorized in the Act of 1934. Congress has appropriated approximately $4,500,000 for this credit fund, on the basis of which commitments have been made in the total amount of $7,631,712.48. Of this amount, $5,533,082.48 has been advanced, against which $2,532,798.23 has been repaid. The repayment record in connection with these loans has been exceptionally good. In 1941, 7.64 per cent of payments due was delinquent; in the following year this rate decreased to 4.95 per cent; in 1943 it decreased to 3.41 per cent, and in 1944 to 2.94 per cent.

SCHOOLS

There has been a steady decline in attendance in Indian Service schools through the war years. In 1942, these schools showed an enrollment of 25,839 pupils. The number dropped to 22,207 in 1943, to 21,828 in 1944, and increased slightly to 22,502 in 1945. This loss of enrollment is accounted for in part by the absence of families who left the reservation and went into war work. Some of the children probably were able to enter public schools in the areas where the parents worked. In many cases, however, the children stayed out of schools and probably will never return. A number of schools throughout the Indian Service were forced to close because of teacher shortage as well as curtailment of transportation as school buses went out of repair.

THE NAVAJO PROBLEM

The most serious educational problem occurs on the Navajo Reservation. Ordinarily, Indian children can be accommodated in public schools where there are no Federal school facilities. Actually, there are more Indian children in public schools than there are in Federal Indian schools. In the Navajo area of 16,000,000 acres, no public schools are available. There are approximately 20,000 children between the ages of 6 and 18, but school facilities exist for only about 60 per cent of the number. Here especially it is essential to provide bus transportation because of the great distances to be covered. With the break-down in transportation, the problem became acute. A large program of school construction, of road building and repair, and replacement of mechanical equipment is indicated.

HEALTH

The shortages and difficulties which affected the educational program were also apparent in the health work carried on by the Indian Service. This Service operates 70 hospitals and sanitoria, with a bed capacity of 4,064, and in addition it has contract arrangements with a number of state, county, and private hospitals. In the course of 1945, 750,000 out-patient treatments were provided by these hospitals and 40,000 patients received hospitalization. Since the Indian Service was not classified as a war agency, its health personnel was at the call of the war-connected agencies, and throughout the Service shortages hampered the program. In addition, equipment became obsolescent, and repairs and replacements were often impossible to obtain.

THE INDIAN WAR RECORD

The record of the Indians in the war is outstanding. A total of 24,521 Indians, exclusive of officers, was in the several armed forces. This number included several hundred Indian women serving in the women's reserves of the Army, Navy, and Marine Corps, and in the nursing services. Two Indians, Lieut. Ernest Childers, a Creek, and Lieut. Jack C. Montgomery, a Cherokee, were awarded the Congressional Medal of Honor. The record is not complete with respect to awards, but the latest information indicates that the Silver Star was awarded to 51 Indians, the Air Medal to 70, the Distinguished Flying Cross to 34, and the Bronze Star Medal to 50.

A Ute Indian, Pvt. Lee Roy Hamlin, was with the first American group to cross the Elbe River and make contact with the Russian Army on April 25, 1945. Another Indian of the same tribe, Pfc. Harvey Natchees, who won the Bronze Star Medal and the Purple Heart, is credited with having been the first American soldier to enter the center of Berlin. A Pima Indian, Pfc. Ira H. Hayes, was with the group of six men who raised the flag on the summit of Mount Suribachi on Iwo Jima.

LEGAL DECISIONS

Several legal decisions handed down during 1945 were noteworthy. Settlement was reached with the State of Wisconsin bringing to a close a 91-year controversy over the title to certain lands located within the boundaries of the Menominee Indian Reservation. The California Indians were awarded a net judgment of slightly over $5,000,000, as payment for lands taken from them in the 1850's. Action in this case had been prosecuted in the Congress and in the courts for more than 20 years. These and other Indian claims cases pointed up the importance of establishing an Indian Claims Commission. Legislation proposing such a Commission has several times been introduced in Congress and has been endorsed by the two major political parties in several conventions. At the end of the year a new bill, H.R. 4497, was reported out by the Indian Affairs Committee of the Lower House, and there was great concern in the Committee to secure the enactment of the measure.

Hearings with respect to the rights of certain Alaska natives to exclusive occupancy of lands and water areas were authorized by the Secretary of the Interior. Three villages, Hydaburg, Klawock, and Kake, asserted claims to some 3,329,000 acres of land and open water, claims which were extensively inquired into by Richard H. Hanna, former Chief Justice of the New Mexico Supreme Court. In his finding, Judge Hanna recognized that, as to certain land areas, these Indians had continued in exclusive use and occupancy of a total area amounting to 273,000 acres. However, with respect to the open waters surrounding these lands, he held that the Indians never did, and did not now, use and occupy these waters exclusively. Rather, the waters were used in common by all tribes within the near area. Accordingly, no exclusive rights in water areas were recognized. The findings of Judge Hanna were confirmed by the Secretary of the

Interior in an order dated July 27, 1945.

NEW INDIAN COMMISSIONER

The year 1945 saw a change in Indian commissioners, the first in 12 years. John Collier, who had entered office as the appointee of President Roosevelt in 1933, retired in March 1945. His administration completely reversed policies which had been in effect almost without change since 1887. This was the policy of individualizing Indian land and breaking up the tribal entity. The new Commissioner is William A. Brophy, of Albuquerque, N. M., who had been the Special Attorney for the New Mexico Pueblos from 1934 until he entered the Department of the Interior in 1944 to work on Puerto Rican matters.

PERIODICAL PUBLICATIONS

American Journal of Sociology
University of Chicago, Chicago, Ill.
American Sociological Review
450 Ahnaip Street, Menasha, Wisconsin.
Interpreter Releases
Common Council for American Unity, New York City.
Milbank Memorial Fund Quarterly
40 Wall Street, New York City.
Population Index
Office of Population Research, Princeton University, Princeton, New Jersey.
Social Forces
University of North Carolina, Chapel Hill, N. C.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN ASSN. ON INDIAN AFFAIRS, INC., 381 Fourth Ave., New York City.
AMERICAN COLONIZATION SOCIETY, 514-6 Colorado Bldg., Washington, D. C.
AMERICAN ETHNOLOGICAL SOCIETY, 100 Washington Square E., New York City.
AMERICAN EUGENICS SOCIETY, INC., 1790 Broadway, New York City.
AMERICAN JEWISH COMMITTEE, 386 Fourth Ave., New York City.
ANCIENT ORDER OF HIBERNIANS IN AMERICA, 1648 Westmont Ave., Pittsburgh, Pa.
BIRTH CONTROL FEDERATION OF AMERICA, INC., THE, 501 Madison Ave., New York City.
COMMON COUNCIL FOR AMERICAN UNITY, 222 Fourth Ave., New York City.
ENGLISH-SPEAKING UNION OF THE U. S., 19 E. 54th St., New York City.
FEDERATION DE L'ALLIANCE FRANÇAISE, 22 E. 60th St., New York City.
FEDERATION OF POLISH JEWS IN AMERICA, 225 W. 34th St., New York City.
HEBREW SHELTERING AND IMMIGRANT AID SOCIETY OF AMERICA, 425 Lafayette St., New York City.
HOLLAND SOCIETY OF N. Y., 90 West St., New York City.
HUGUENOT SOCIETY OF AMERICA, 122 E. 58th St., New York City.
INDIAN RIGHTS ASSN., INC., 301 S. Seventeenth St., Philadelphia, Pa.
INTER-AMERICAN INDIAN INSTITUTE, THE, Londres 64, Mexico City, D.F.
JEWISH NATIONAL WORKERS' ALLIANCE OF AMERICA, 45 E. 17th Street, New York City.
MILBANK MEMORIAL FUND, 40 Wall St., New York City.
NATIONAL ASSN. FOR ADVANCEMENT OF COLORED PEOPLE, 69 Fifth Ave., New York City.

National Committee on Maternal Health, 2 E. 103rd St., New York City.

National Council of Jewish Women, 1819 Broadway, New York City.

National Indian Institute, Department of the Interior, Washington, D. C.

National Jewish Welfare Board, 145 E. 32nd St., New York City.

National Urban League, 1133 Broadway, New York City.

Netherland-America Foundation Inc., 10 Rockefeller Plaza, New York City.

Polish National Alliance, 142 Grand Ave., Brooklyn, New York City.

Population Assn. of America, U. S. Bureau of the Census, Washington, D. C.

Population Research, Office of, 20 Nassau St., Princeton, N. J.

Scripps Foundation for the Study of Population, Miami University, Oxford. O.

United States Bureau of the Census, Washington, D. C.

United States Immigration and Naturalization Service, Franklin Trust Building, Philadelphia 2, Pa.

Young Judaea, Inc., 381 Fourth Ave., New York City.

Young Men's Hebrew Assn., Lexington Ave. and 92nd St., New York City.

Young Women's Hebrew Association, Lexington Ave., and 92nd St., New York City.

Zionist Organization of America, 41 E. 42nd St., New York City.

DIVISION XV

SOCIAL PROBLEMS AND CONDITIONS

PUBLIC SOCIAL WORK AND WELFARE

By Howard L. Russell
Director, American Public Welfare Association

GENERAL

Public welfare programs in the United States, while they are as old as the nation itself, have only in the twentieth century emerged as a well defined pattern of provisions and services to people in need. Only within the last decade and since the enactment of the Federal Social Security Act in 1935 have social services, public assistance, and related forms of public aid become an integral part of Federal, state, and local government operations.

In many governmental jurisdictions, however, the organization of public welfare services retains a "patchwork" quality resulting from the gradual establishment of new service programs without relating them to already existing welfare agencies. Accordingly, 1945 witnessed activity at all levels of government in studying and effecting further integration of such services. General assistance, for example, which has been financially supported by state and local resources and categorical public assistance financed by Federal, state, and local funds are gradually being integrated into one administrative program of public assistance. A closer integration is also being sought between child welfare services and the public assistance program. Along with this trend toward integrated welfare services goes the development of a comprehensive service program to all physically and mentally handicapped adults and children.

The end of the war has stimulated the efforts of welfare administrators everywhere to streamline their administrative organization and strengthen the financial support of their programs to be prepared for the immediate problems of the reconversion period. Generally speaking, public welfare organizations are in a better position to meet an increased demand for services than ever before.

The pattern of Federal-state-local partnership in financing and administering public welfare has demonstrated its effectiveness over the past decade, and provides the basis for further sound developments. Such developments are looked for by simultaneous legislative action at all governmental levels.

FEDERAL WELFARE LEGISLATION

Little Federal welfare legislation was enacted during 1945, but Congress had under consideration many significant proposals for expansion of social security and welfare services. The well-known Wagner-Murray-Dingell Bill includes most of these proposals such as security benefits to veterans, federalization of unemployment compensation and employment services, a compulsory health insurance plan, Federal aid for hospital construction, expansion of child welfare services, extension of Old Age and Survivors Insurance, and important changes in the nationwide public assistance program. On this proposed bill centered the public discussion of new welfare proposals. It is expected that Congressional action on these proposals will involve consideration of the issues one by one with separate bills to be presented on each issue.

Proposals to amend the assistance title of the Federal Social Security Act are of prime importance to state and local governments, since they involve additional Federal financial support of the public assistance program and establish conditions that would materially improve administrative standards in this program. These proposals include Federal matching for general assistance, the elimination of Federal ceilings on categorical grants, variable grants to states, direct payment to doctors for medical care, the elimination of residence and settlement as a condition of eligibility, and a requirement that federally matched services be administered by a single agency at the state and local levels.

The proposal to extend the benefits of Old Age and Survivors Insurance to a larger proportion of the population would eventually have a significant effect in reducing the total costs of public assistance. In a similar manner improvements in the nationwide but state administered state unemployment compensation program would relieve the public assistance agencies of much of the burden of caring for persons in need because of temporary unemployment.

Widespread interest was also evidenced in 1945 in proposals to increase Federal support of children's services administered at the state and local levels. A specific objective of the Maternal and Child Welfare Bill of 1945 is to seek statewide coverage for services to children.

MOVE TO INTEGRATE FEDERAL WELFARE SERVICES

During 1945 the President asked Congress for an extension of his war powers with respect to reorganization of Federal agencies. These powers, somewhat restricted, have been granted to him, and it is expected that a reshuffling of Federal functions by executive order may provide some improved integration of welfare services provided by the Federal Government. At the same time, considerable interest has been expressed in a proposal to create a new Federal department with cabinet status for health, education, and welfare. This new department would include all those agencies now loosely held together under the Federal Security Agency, and would further include the Children's Bureau and some other miscellaneous welfare functions. This proposal contemplates four major divisions of health, education, social security, and public welfare. Its adoption would further encourage a desirable integration of welfare services in the Federal Government.

WELFARE LEGISLATION IN NEW YORK STATE

The year 1945 saw 46 state legislative bodies in session, and since 43 of these would not meet again in regular session before 1947, it might properly be considered that the 1945 crop of welfare laws represents the states' conception of legislative provisions needed for the immediate reconversion period.

Generally speaking, 1945 state legislation has tended to make welfare benefits and services more broadly available to all people and on a more adequate basis. While all states which had legislatures in session passed some new welfare bills, special mention can be made of those states which gave major consideration to their state welfare programs. New York, for example, provided legislative framework for a concentrated attack on the problems of juvenile delinquency, and enacted eight separate bills which gave effect to the recommendations of the Governor's interdepartmental committee on delinquency. This included the establishment of a State Youth Commission. This legislation provided for state leadership in the prevention of delinquency, new state facilities for the care of delinquents, and greater flexibility in the use of state institutions for the treatment of young offenders. New York also created in its Executive Department a new State Division of Veterans' Affairs and required that county veterans' service agencies be established. It strengthened its public assistance program, continued its temporary State Commission on Medical Care, and authorized the Special Committee on Social Welfare and Relief of the New York State Joint Legislative Committee on Interstate Cooperation (known as the Ostertag Committee) to continue its comprehensive study of the administration of social services in the state.

LEGISLATION IN OTHER STATES

The Sixty-fourth General Assembly of Illinois enacted more than 160 laws pertaining to social welfare. Many of these represented decided improvements in the statutes pertaining to child welfare, care of the sick, housing, public aid, public health, and the public school program.

Indiana, following extended controversy over its public welfare organization, rearranged its welfare structure and passed several legislative acts designed to strengthen the total program.

The important Constitutional Convention in Missouri considered more than 377 proposals for changes in the state constitution and many of these were related to the state's welfare services.

Other states which gave particular attention to social legislation in 1945 were Alabama, California, Maine, Maryland, Massachusetts, Minnesota, North Carolina, Pennsylvania, North and South Dakota, Tennessee, and Vermont.

BROADENING OF PUBLIC ASSISTANCE GRANTS

Many state legislatures during 1945 broadened eligibility requirements for public assistance and improved the adequacy of public assistance grants. This latter activity was a direct attempt to keep public assistance grants in line with rising costs of living. Significant changes in the state public assistance programs included a Wisconsin special category for totally disabled persons, cash grants for home relief in New York, removal of ceiling limitations on old age grants in North Dakota and Oregon, and an increase in monthly old age assistance maxima in South Dakota, North Carolina, Delaware, Michigan, Vermont, Utah, Washington, and Wyoming.

A number of states revised provisions which had restricted grants to dependent children under certain limiting conditions. Pennsylvania lessened its residence restrictions for public aid. Maryland and Vermont reduced residence requirements for assistance to the needy blind. Illinois, North Carolina, and Massachusetts revised restrictive measures which limited eligibility for public assistance grants.

Several states authorized important administrative changes in welfare programs. Typical of these were the reorganization of state and county welfare boards in Indiana, the consolidation of executive positions in Michigan's twin welfare departments, and the transfer in Wisconsin of its child welfare services to county welfare departments.

SPECIAL STUDIES AND SURVEYS

A number of states during 1945 initiated special studies or surveys of problems in relation to indigent and aged citizens. In Ohio the Chief of the Division of Aid to the Aged was directed by law to make a complete and thorough survey of the present needs of recipients of aid for the aged in relation to present costs of relief standards. Ohio also provided for the appointment of a Pension Program Commission to make a study of public pensions, including aid for the aged, to which the taxpayers of the state contributed in any way.

The Kansas Legislative Council was directed to make a study of the present state program and facilities for the care, treatment, and other disposition of delinquent, dependent, neglected or mentally defective children.

In Oregon a Joint Interim Committee was appointed for the purpose of investigating and studying the advisability of establishing institutions for the care, examination, specialized study and treatment of delinquent, under-privileged, and maladjusted children, and generally to investigate and study the prevention of child delinquency and the rehabilitation of delinquent children.

Missouri established a Children's Code Commission to survey existing state laws regarding children's services and to study unmet needs of children. Illinois also created a special commission to "prepare and develop a program designed to consolidate and coordinate the administration of child welfare functions of the state."

The Connecticut legislature enacted a law requiring the Public Welfare Council to "make a survey of the conditions leading to delinqency and neglect of children and the needs of delinquent, neglected, and uncared for children."

A new law in the State of Washington provided for appropriation by counties and methods for financing a program for juvenile care.

LOCAL PUBLIC WELFARE

Local welfare administrators have been increasingly concerned with the effect of reconversion unemployment on the relief rolls. No dramatic changes in relief rolls occurred during the year, but administrators were conscious of the fact that the downward trend, maintained since pre-Pearl Harbor, had reversed itself, and there was increasing evidence in the latter months of the year of heavy demands for public aid. A few local governments increased welfare appropriations in anticipation of larger relief rolls, but most were satisfied to wait until an emergency arose. Further increases in the cost of living combined with larger relief rolls obviously may present a difficult financial problem to the local public welfare agency.

The administrative agencies for public welfare continued during 1945 to feel the effect of the wartime shortage of trained personnel but this situation tended to improve toward the close of the year with the return of former employes from the armed services.

PUBLIC ASSISTANCE

In September 1945, 232,000 general assistance cases were being added throughout the country. This represented a decline of 8.7 per cent from a year previous, while expenditures declined only 1.7 per cent and represented an average monthly grant of $29.72.

Old Age Assistance, aiding 2,034,000 persons in September 1945, fell off 1.7 per cent from the previous year, but expenditures were 6 per cent higher, with an average monthly grant of $30.17.

Aid to the Blind was given to 70,753 recipients in September 1945, which was a decline of 2.5 per cent from the previous year, while expenditures increased 8.7 per cent, with an average grant of $32.38.

The Aid to Dependent Children program in September 1945 aided 258,000 families containing 657,000 children. This was an increase of 2.5 per cent over the previous year in number of families, while expenditures increased 14.3 per cent, with an average grant of $48.93 for each family.

The increased expenditures for all forms of public aid, as compared to the decline in the total number of persons assisted, evidences the nationwide effort to keep assistance grants in line with increased living costs.

The approximately 3,000,000 handicapped and indigent people on assistance rolls during 1945 received about $1,000,000,000 in aid from Federal, state, and local governments. About 15 per cent of these funds came from local sources as compared to 44 per cent from state and 41 per cent from Federal sources.

CHILD WELFARE

A central and important function of public welfare agencies is the provision of child welfare services. These are financed largely by state and local governments but also supported and stimulated by Federal grants authorized through the Social Security Act but administered by the Children's Bureau in the Department of Labor. Federal grants for children's services are provided on a discretionary basis rather than on a fixed formula of matching.

Current Federal proposals that funds for child welfare services be substantially increased are based on the desire to make such services available on a nationwide basis. Such a change, if adopted, would indicate a move in the direction of matching state and local expenditures rather than the allocation of such funds on a discretionary plan.

The functions of child welfare workers have been described by the Children's Bureau as including (1) the protection of children in their own homes through guidance and legislative action, (2) arranging care for children outside of their own homes where necessary, (3) finding and securing attention for children who are physically or mentally handicapped, (4) safeguarding children of illegitimate birth, (5) service to courts handling problems of child custody or juvenile delinquency, (6) assistance to child-caring institutions in problems of admission and aftercare services, (7) extending psychiatric or other casework services to children in connection with mental hygiene clinics, (8) assisting schools in handling attendance and conduct problems, and (9) organizing community activities for the prevention of juvenile delinquency.

The wartime interest in the overall problem of juvenile delinquency was not abated during 1945, and public welfare departments have played an increasingly important role in working with other community agencies in coping with this problem. Services to juvenile courts occupy a more and more important place in the program of the local public welfare agency.

CARE OF THE CHRONICALLY ILL

Welfare administrators have been concerned during 1945 with the special needs of the chronically ill. While chronic sickness spans all age groups, the custodial and institutional care needed by the chronically ill in the aged group continued to be a serious problem. Welfare workers are exploring the means of increasing such custodial and institutional care. They are encouraging a recognized trend to convert poorhouses into infirmaries, and to establish standards for the conduct of private nursing homes and homes for the aged. Additional consideration is being given to the effect of providing public assistance to inmates of public institutions as a means of increasing the facilities available to the permanently handicapped and chronically ill in need of special care.

CONCLUSION

The year 1945 was a year of planning needed changes in the content of public welfare programs and the perfection of their organization. Changes that have been made indicate a broadening concept of public welfare responsibilities and a tightening of organizational structure to discharge that responsibility. The unification of public welfare administrative machinery at all three levels of government, and a liberalizing of the Social Security Act to provide broad Federal participation and leadership in all forms of social assistance and service remain the immediate objectives of public welfare.

HOUSING

By Howard F. Vickery

Director of Information, National Housing Agency

GENERAL

At the end of hostilities, housing loomed as one of the most critical of United States reconversion problems. By the end of 1945, machinery had been set in motion to ease some of the emergency conditions and to establish a national housing policy and a long-range program to stimulate a larger volume of home building for all income groups. While none of these measures could remedy overnight a housing situation that had been long in the making, there were hopeful signs in the recognition by both the public and responsible officials that new and comprehensive steps were necessary and must be taken.

The year brought the completion of the war housing program, under which more than 4,000,000 migrating war workers had been housed for war production, and the building industry kept alive and started on reconversion.

War's end brought, too, a rapid discharge of veterans. As more and more veterans returned to civilian life to look for homes or double up, and as the immediate prospects for any large volume of new building declined, the serious nature and extent of the nation's housing shortage was more widely recognized. This shortage, which had been predicted by the National Housing Agency, was estimated as causing the doubling up of more than 3,000,000 families with others by the end of 1946.

The year could claim the introduction of far reaching housing legislation—S.1592, The General Housing Act of 1945, the most comprehensive housing legislation ever to be considered by the Congress. And with the close of the year Congress approved funds to move temporary war housing to provide additional homes for veterans. Also, as the year ended, a simplified system of priorities for building materials on new homes at prices of $10,000 and below with veterans preference, was to be restored to help combat inflation and make possible a larger volume of home building in the price ranges where the shortage was the most acute.

THE WAR HOUSING JOB

The National Housing Agency, established by Executive Order on Feb. 24, 1942, to consolidate Federal nonfarm housing functions, had the major responsibility for the war housing job which was brought to completion in 1945. Policies were centered in the Office of the Administrator, and operations carried out through three major constituent units: Federal Home Loan Bank Administration, Federal Housing Administration, and Federal Public Housing Authority.

With the conclusion of its war job, the NHA had carried out a program to provide the necessary shelter to meet the needs of some 4,000,000 migrating war workers and their families —an estimated 9,000,000 persons in all. About half of these workers were taken care of in existing structures, largely through "Share Your Home" campaigns. Housing for the others had to be built.

Private financing was called upon to build when it could meet wartime needs and where there was reasonable assurance that there would be continued demand for the housing postwar. Public financing was used to build the remainder. In all categories of war housing, private financing supplied more than 1,000,000 dwelling units with an approximate private investment of nearly $5,000,000,000, a major share of it covered by FHA mortgage insurance. Public financing supplied over 830,000 units at a cost of $2,600,000,000.

As the needs of migrating workers began to be met, the NHA, acting in concert with the War Production Board, laid plans as early as July 1944 to broaden the war housing program as rapidly as manpower and materials permitted. Provision was made for three categories of priority housing—H-1 housing for migrating war workers with a sales price ceiling of $6,000; H-2 housing to relieve general congestion with a ceiling of $8,000; and H-3 housing to relieve cases of individual hardship and to take care of returning veterans.

Thus a core of the building industry was kept active in meeting imperative needs and in preparation for the post-war job. On Oct. 15, 1945, WPB Order L-41, the war measure which restricted residential building to quotas established by NHA, was lifted, and priorities for materials and sales price ceilings were abolished.

As of Aug. 31, 1945, when the war housing program was ended, it stood as follows:

	Completed	Under Construction	To Be Started[1]
H-1: Housing for In-migrant War Workers:			
Privately financed	1,009,001	26,487	20,702
New permanent units	810,711	25,671	18,580
Converted units	198,290	816	2,122
Publicly financed	832,241	22,004	4,978
New permanent dwellings	192,093	2,754	1,102
Demountable family dwellings	81,116	81	0
Temporary family dwellings	261,902	15,927	947
Converted family dwellings	49,370	6	427
Dormitory units	168,367	1,493	890
Stop-gap	79,393	1,743	1,612
Total H-1—Private and Public	1,841,242	48,491	25,680
H-2: Housing to Relieve General Congestion:			
Privately financed dwellings	1,571	23,526	78,159
Publicly financed dwellings	0	44	4,395
Total H-2—Private and Public	1,571	23,570	82,554
H-3[2]: Housing to Relieve Individual Hardship (all private):			
New construction	12,900	41,800	16,746
Conversion units	28,077	8,452	0
Total H-3	40,977	50,252	16,746
Grand Total—All War Housing—H-1, H-2, H-3	1,883,790	122,323	124,980

[1] "To Be Started" is housing which was approved as of V-J Day; publicly financed housing in this category was terminated and privately financed quotas which had not been taken by builders were withdrawn. Publicly financed war housing under construction was terminated where it was in the public interest.

[2] Approximately 16,000 veterans who wished to build their own homes had H-3 priorities as of Aug. 31.

FEDERAL HOUSING ADMINISTRATION

Most of FHA's operations during the war period were conducted under Title VI which was added to the National Housing Act specifically to assist in providing housing for war workers, and a separate War Housing Insurance Fund was established. Insurance activity under this title ended in August 1945.

Mortgages insured under it were limited to a maximum of $5,400 on a single-family house; $7,500 on a two-family house; $9,500 on a three-family house; and $12,000 on a four-family house, and could cover up to 90 per cent of FHA valuation.

Also under this Title, FHA was authorized to insure mortgages on large-scale rental projects up to 90 per cent of the appraised valuation but not to exceed $5,000,000 for any one project.

Approximately 450,000 dwelling units for war workers were provided by mortgages insured under Title VI, for which the total insurance authorization was $1,800,000,000.

From the start of the national emergency in July 1940 up to the surrender of Japan, approximately 750,000 new privately financed dwelling units were started under all FHA Titles.

The long-term program of the FHA, carried out under Titles I and II, of the National Housing Act, has enabled more than 1,600,000 families to build, purchase, or refinance their homes, or to rent modern quarters. FHA insurance under Title II, which covers mortgages issued to finance the building or buying of a home, is now more than $5,133,000,000, and FHA repair loans under Title I, exceeding more than 5,000,000 in number, aggregate $1,903,733,000. As of Aug. 31, 1945, approximately $2,090,689,150 of the mortgage loans and more than $1,600,000,000 of the repair loans had been repaid through regular monthly payments or prepayments.

FEDERAL PUBLIC HOUSING AUTHORITY

The Federal Public Housing Authority, which has responsibility for Federally administered public housing programs, had toward the end of 1945, four principal activities: 1. The management of public war housing during the period of reconversion and demobilization for distressed families of veterans and servicemen, for civilian employees of the War and Navy Departments and of private industries completing war contracts, and for distressed families dislocated or displaced as a result of the war or demobilization; 2. Disposal of Federally owned housing determined to be surplus to the above needs; 3. Extension of Federal aids to low rent housing built before the war, and the conversion of war housing under the U. S. Housing Act to low rent status; and 4. Extension of Federal aid on low rent projects deferred by the war, as building labor and materials become available.

Before the outbreak of war interrupted construction of low rent housing under the United States Housing Act, local housing authorities in 173 communities built 334 projects containing 105,600 units for low income families formerly living in slum dwellings. The program thus far has been predominantly urban, but a small number of farm housing units were constructed under a rural program started shortly before the war.

The total development cost of the pre-war low rent projects was $483,000,000. Although the FPHA is authorized to lend up to 90 per cent of the development costs, it has actually supplied only two-thirds of the long-term financing, as a result of the ability of local housing authorities to sell bonds on the private market at an interest saving. All loans for the FPHA or private investors are being repaid in full, with interest, in accordance with established amortization plans.

To help keep rents within the means of low income families, the FPHA makes an annual contribution, or subsidy, which for 1944 totaled $8,600,000, or $7.19 per dwelling unit per month. To June 30, 1945, Federal subsidy payments totaled $43,409,000; this represents the entire cost to the Federal Government since the beginning of the low rent program. In addition, the local community is required to make an annual contribution equivalent to at least one-fifth of the Federal contribution. This is normally done by exempting the projects from state and local taxes, as authorized by the U. S. Housing Act and state housing laws.

When the war began, only half of the program authorized under the United States Housing Act had been completed. Units under construction at that time were completed with the aid of priorities to house war workers, and are being turned back to the use of low income families as conditions permit. Additional war housing projects were built under Public Law 671, which authorized the use of low rent housing funds for war housing construction. Altogether low rent units scheduled in areas not requiring more war housing were deferred, pending availability of building labor and materials. As of Aug. 31, 1945, the total housing built or authorized under the United States Housing Act comprised 193,566 dwellings in 749 projects.

The major wartime function of FPHA was to provide publicly financed housing for in-migrant war workers and their families; the FPHA being responsible for the construction and management of about four-fifths of the total provided. The remainder was provided by other agencies, principally the War and Navy Departments and the U. S. Maritime Commission. For the total public war housing program, some $2,600,000,000 was made available, all from Congressional appropriations or loan authorizations except $29,000,000 expended by the New York State Division of Housing.

From these funds some 864,000 accommodations were scheduled for families or single persons, and all but 32,000 units had been completed by Aug. 31, 1945. The war housing completed includes 585,000 family dwelling units, 168,000 dormitory units, and 79,000 trailers, portable shelters, and other forms of stop-gap housing. These figures include accommodations made available by re-use of trailers and temporary or demountable units which were moved from one location to another.

Not counting units that may be transferred to the FPHA by the NHA or the Surplus Property Administration, the FPHA has some 656,000 units, completed or under construction contract, to dispose of.

FEDERAL HOME LOAN BANK ADMINISTRATION

The third constituent unit of the National Housing Agency, the Federal Home Loan Bank Administration, continued its important credit and financing operations begun in 1932. The Federal Home Loan Bank Administration directs the operations of the Federal Home Loan Bank System and the Federal Savings and Loan Insurance Corporation, two permanent agencies established to encourage home ownership and economical home financing, and to protect savings. Also under the supervision of the Administration is the Home Owners' Loan Corporation, an emergency agency founded to aid distressed homeowners and stabilize investments in residential real estate during the depression.

FEDERAL HOME LOAN BANK SYSTEM

Authorized in 1932, the System provides a credit reserve for thrift and home-financing institutions. Following the national pattern set up for commercial banks in the earlier inauguration of the Federal Reserve System, 12 regional Federal Home Loan Banks were organized, each to serve member home-financing institutions in its area by making both short and long-term advances to meet their needs. Through the regional banks funds may be shifted from areas of abundant credit to areas of scarcity. Since their establishment, they have advanced $1,497,966,000 to their member institutions, of which $112,450,000 were outstanding on Aug. 31, 1945.

Member institutions of the System totaled 3,699. Of these 3,659 were savings and loan associations, cooperative banks and homestead associations, Federal Savings and Loan Associations, for whom membership is mandatory; 25 mutual savings banks and 15 insurance companies were also members of the System. Assets of member institutions amounted to $8,087,000,000. The System is self-supporting.

FEDERAL SAVINGS AND LOAN INSURANCE CORPORATION

In 1934 Congress provided an insurance program for investors in savings and loan associations and similar home financing institutions by creating the Federal Savings and Loan Insurance Corporation. Federal Savings and Loan Associations were required to be insured; insurance is optional for state chartered associations. The public confidence, inspired by the fact that savings are so safeguarded, has provided a steady flow of funds into insured institutions. About 4,300,000 investors in 2,475 savings and loan associations, with combined assets of approximately $5,700,000,000, are now protected by insurance up to $5,000 each. The Federal Savings and Loan Insurance Corporation has been self-supporting.

HOME OWNERS' LOAN CORPORATION

Over a period of three years following its creation in 1933, the Home Owners' Loan Corporation refinanced delinquent mortgages on more than 1,000,000 homes, providing low-interest, long-term loans which gave the owners a new chance to rehabilitate themselves. In these rescue operations, approximately $3,093,000,000 were loaned to homeowners, an amount increased to $3,490,000,000 by later advances to borrowers and other disbursements by the Corporation.

Almost 74 per cent of this investment has been liquidated through collections on the Corporation's loans and the sale of properties securing its mortgages which it was obliged to take over by foreclosure. Since 1936 the primary functions of the HOLC have been its collections and the general liquidation of its assets, as well as aiding its borrowers to meet their payments and retain their homes. Although the agency was forced to acquire a total of 198,127 houses by foreclosure, all but 663 had been sold by Aug. 31, 1945.

On that date HOLC was collecting on 515,684 accounts—391,732 those of original borrowers and the rest purchasers of acquired properties. A total of 488,109 borrowers and purchasers of HOLC houses had paid off their accounts in full. More than 84,000 borrowers were making monthly payments in amounts greater than called for by their contracts.

Notwithstanding the fact that HOLC made loans to homeowners badly in arrears on their old mortgages, and high losses were originally anticipated, the operations during the 12 months ended Sept. 30, resulted in a net income of more than $20,000,000. This reduced the net deficit to $86,000,000 which is less than 2½ per cent of the Corporation's total investment in loans and properties.

Liquidation of HOLC accounts to that date represents an acceleration of about 13 per cent over amortization schedules. Unless something wholly unexpected develops to interfere with present progress, there is little doubt that liquidation will be completed within the time set by law, without loss to the Government.

POST-WAR NEEDS AND PROGRAMS

With the end of the war, the National Housing Agency and its constituent units, immediately directed its efforts to stimulating the largest possible volume of home construction and to combating inflationary price trends resulting from the acute shortage of housing throughout the country.

The housing job ahead was recognized as being unprecedented in the nation's history. Almost every city and town had a shortage of housing growing out of two conditions—lack of sufficient construction to meet increasing needs in pre-war years, and the fact that, during the war, home construction had to be limited to shelter for migrating war workers so that materials and manpower could be directed to the production of weapons and equipment for our armed forces.

Some 1,200,000 families were already doubled up by Oct. 1, 1945, and an estimated 3,400,000 additional families were expected to need accommodations by Dec. 31, 1946. Approximately, 2,900,000 of these were established as being veterans seeking to reestablish themselves with their families in normal civilian life.

To meet this need less than 1,000,000 dwellings were anticipated through present and future vacancies, and the most optimistic forecasts of dwellings that may become available through new construction and conversion were 475,000 units. The prospect was for a housing deficit of 2,000,000 accommodations by the end of 1946, over and above the current deficit of 1,200,000 units.

The NHA, through its regional offices, is aiding communities to organize to meet as much of this housing need as possible, particularly that of veterans. Veterans' families are being given occupancy preference for vacancies in all Federally owned housing, builders are urged to give veterans preference in the sale of new houses, and communities are being urged to establish adequate housing services to assure veterans preference in future vacancies in the existing housing supply.

From the long-range point of view, the NHA estimated that the country needs 12,500,000 new dwellings in the next 10 years. Construction at this scale would mean an investment of $6,000,000,000 to $7,000,000,000 annually and would provide more than 4,000,000 jobs, off and on the building site. To achieve these ends, and to move toward a goal of a decent home for every American family, proposals are pending in Congress to provide for: new aids to private enterprise to encourage the production of housing for rent and sale in the "middle market"; aids to communities to clear slums and blighted areas and prepare the land for redevelopment at economically sound costs; continued Federal aid to communities to provide low rent, public housing for families of very low incomes; a broad program of technical and economic research aimed at aiding the building industry to reduce costs; and aid to communities in analyzing their own housing problems and in mapping out plans to meet the needs of all income groups.

PRISONS AND CRIME CONTROL

By James V. Bennett

Director, Bureau of Prisons, Department of Justice

CORRECTIONAL PROGRAMS OF THE ARMY AND NAVY

The most impressive development during 1945 in correctional work in terms of size as well as program, was the rapid expansion of both the Army and Navy. As of Nov. 1, 1945, the Army had a total of 34,766 prisoners and the Navy, 16,070 prisoners. In general, both Army and Navy Corrections Divisions followed the lead of well established philosophy of individualized diagnosis and treatment, and construction and administration of institutions. In spite of inadequate facilities, inexperienced personnel, and a very rapid rate of commitment, the Army and Navy programs soon showed rapid progress. From December 1942 through Nov. 1, 1945, a total of 16,915 Army general prisoners were honorably restored to military duty.

After the cessation of hostilities, the War Department formulated a procedure which provided for the re-examination of the sentences of all general prisoners through the operation of special clemency boards. The chairman of the special board that determined its broad policies with respect to the proper sentences for Army cases was first U. S. Circuit Judge Sherman Minton, former Senator from Indiana, and later Associate Justice Owen Roberts recently retired from the Supreme Court of the United States. These gentlemen, in consultation with high-ranking Army officers, reviewed typical cases of convicted soldiers and recommended to the Secretary of War such revisions in the more or less hastily imposed sentences of Army courts-martial as seemed to them appropriate. These decisions, when and as approved by the Secretary of War, established the benchmarks which will be used by reviewing boards in determining the need for clemency in particular cases.

The Navy's correctional program

has gone through a similar rapid growth. The number of general courts-martial prisoners had increased 8,000 during the fiscal year to a total of 14,524, and by Nov. 1, 1945 had increased to 16,070 prisoners. Paralleling the Army procedures, the Secretary of the Navy established the Naval Clemency and Prison Inspection Board headed by Vice Admiral J. K. Taussig. A review of all cases committed for purely military offenses is being made each six months.

TRENDS IN PRISON POPULATION

For many years, population rates in the prisons and reformatories of the United States showed a continuous increase. Beginning with 1940, however, and continuing during the war years, this population began a steady decline. At the end of 1940, the total prison and reformatory population was slightly more than 180,000. By the end of 1943, this figure had been reduced to 139,588, and a further decrease to 127,000 was reported on Dec. 31, 1944. Although no estimates of the prison population for 1945 have been made available, there is some evidence that the low point has been reached.

The probabilities are that no further declines in population will be seen and that the post-war years may witness an equally striking rise in the population of our prisons and reformatories. All the elements which make for an increase in crime seem to be on the immediate horizon—displaced war-workers, new standards of money values, influence and example of war profiteers, the large number of juvenile delinquents, and many other problems of reconversion.

NEW YORK STATE LEGISLATION

Toward the end of hostilities, there was a noticeable shift in emphasis in the correctional field from war to post-war planning. In every section of the country, states began to appoint committees and draw up blueprints of a modernized correctional system. In addition to new legislation covering sentencing procedures, centralization of control, selection of personnel, new building programs are under consideration in Pennsylvania, Maryland, Wisconsin, California, Alabama, Louisiana, and in other states. To assist these states and to obtain an overall view of the needs and plans for the post-war years, a Committee on Post-War Planning, under the chairmanship of Austin H. MacCormick, was created by the American Prison Association and has been very active during the past two years.

In state prison systems, the year 1945 was filled with plans for post-war expansion and improvement in both institutional facilities and programs. A few states began actual operations under new and forward looking legislation.

New York led the states in 1945 in new correctional legislation, enacting a comprehensive and progressive program for improvement in both the field of correctional administration and control of juvenile delinquency. One statute, known as the Youth Act, authorized the establishment of local youth bureaus, recreation and education projects, and general guidance for the development, protection, and security of children. The act also created a temporary State Commission to assist local agencies in preventing juvenile delinquency and to reimburse half the cost of any local community program which the Commission approves.

Another New York statute provides that no child subject to the laws of the Childrens' Court may be detained or committed to any jail, penitentiary, or lock-up or in any place where he may come in contact with previous offenders. Recent legislation also provides for a Reception Center at the Elmira Reformatory where all male offenders between the ages of 16 and 21 will be committed by the courts for diagnosis and designation to the proper institution.

A marked advance in parole was made by the passage of a law unifying the nine separate parole systems in the state under a State Board of Paroles within the Department of Corrections.

LEGISLATION IN OTHER STATES

The Wisconsin legislature took active steps to improve the treatment of offenders in that state by authorizing a $600,000 diagnostic center at Madison. The center, when constructed, will supply complete information concerning offenders committed by the courts. The center is to be operated jointly by the state Department of Public Welfare and the Medical School of the University of Wisconsin.

Maryland approved legislation to provide indeterminate sentences for offenders between the ages of 16 to 25 years. The Women's Prison and the State Penal Farm will be converted into reformatories for the incarceration of these youthful offenders. A second law revised the Juvenile Court statute, setting up a probation system and abolishing the jurisdiction of the obsolete Magistrate's Court in juvenile cases and vesting it in the circuit courts. The age limit of juveniles is raised to 18 years, and jurisdiction extends to dependent, delinquent, neglected and feeble-minded children.

This by no means exhausts the list of states active in the improvement of their correctional programs. California, Virginia, Pennsylvania, and Georgia are instances of states which are now building on foundations of legislation previously laid.

THE JUVENILE OFFENDER

The importance of finding some better method of readjusting the prisoner has been brought to the attention of the public most strikingly by the American Law Institute. This organization of lawyers and judges focused attention upon the youthful offender by showing statistically and through case studies that most of the adult criminality has its inception in conviction of crime before the age of 21. While young people under the age of 21 form only 13 per cent of the population, they constitute 40 per cent of the apprehended burglars and 50 per cent of the automobile thieves. Nearly 60 per cent of those who have a prison record again commit crime. This organization has been urging the establishment of a Youth Justice Authority in each state to assume responsibility for all youthful offenders. A model act was adopted at the annual meeting of the Law Institute in June 1940, which, if adopted, will write into the state laws for the first time the notion that reliance upon our present methods of prison and reformatory treatment is unsound and will establish in each state an authority with the sole responsibility for a preventive and corrective program for young persons centralized in a qualified commission having full power to utilize all the scientific and modern methods of analysis and treatment.

So far, the only state to enact legislation along these forward-looking lines has been California, although other states have had similar legislation under consideration. The legislation passed in 1944 creates an Adult Authority which, like the Youth Authority established previously, has the power to fix sentences, grant paroles, and transfer prisoners in accordance with sound principles of individual classification.

The whole youth problem is highlighted by statistics showing that the age of persons arrested and imprisoned increased sharply in the past few years. Statistics published by the Federal Bureau of Investigation reveal that in the first six months of 1945, 21.4 per cent of all persons arrested were under 21 years of age as compared to 19.2 per cent in the first six months of the previous year. Arrests of juvenile girls for crimes against property increased 9.2 per cent and arrests for boys for crimes against persons increased 23.8 per cent. In the Federal prison system the percentage of commitments under 20 years of age rose from 8.5 per cent in 1941 to 15.2 per cent in 1945.

PROBATION AND PAROLE

The year 1945 seems to have been an active year for consideration and passage of legislation in the correctional field. Although much of the legislation proposed dealt with the youthful offender, a good deal of it was devoted to probation and parole.

While much of the proposed legislation failed to pass the respective state legislatures, the nature of the proposals themselves is significant.

In Colorado, for example, bills were introduced to allow the judge to place persons on probation without the concurrence of the prosecuting attorney and to create a state probation and parole system. The National Probation Association prepared the draft of these bills on request of the State Bar Association but they failed to pass. In Connecticut, bills to establish statewide administration of adult probation and a youth correction authority were pending in the state legislature.

The Florida legislature failed to pass a bill establishing a juvenile court in each county not having a separate court of exclusive and original jurisdiction over dependent and delinquent children under 17. The bill also provided for the appointment of a state director of juvenile probation. In Michigan, some progress was achieved when the prohibition against using probation for persons having been twice convicted on a felony was eliminated.

A bill to establish a state board of adult probation and parole and to authorize the use of probation, parole, and suspended sentence was passed by the House in the Montana legislature but killed in the Senate. In Nevada, the powers and duties of the State Board of Pardon and Parole Commissioners were enlarged, giving them the power to appoint one or more parole officers.

Among the legislation passed in New York in the correctional field, one bill gave the State Board of Parole the power to issue a certificate of good conduct to any person previously convicted in the state of a crime who thereafter conducts himself in a manner warranting such a grant and if such conduct has continued for a period of not less than five consecutive years. Persons who hold such certificates or who have been pardoned may have business or professional licenses restored to them. These laws affect the right to receive an alcoholic beverage license, to practice medicine, to be licensed as a private detective, and to exercise the voting franchise.

Increasing attention also is being given to the need for considering the crime problem as a national responsibility. There is a growing feeling that solid improvement in the prevention and control of crime can not be made unless local law enforcement agencies, court policies, and correctional standards are brought more nearly to the same plane. It seems to many people that the crime problem is not being attacked in any fundamental way, for New York or Wisconsin or California to improve the condition of its prisons, rigidly enforce its laws, or provide enlightened care for wayward youth if their borders still remain open to embittered and unreformed convicts or to the maladjusted citizens of other states which make no attempt to provide equal services.

PERIODICAL PUBLICATIONS

American Childhood
74 Park St., Springfield, Mass.

American Journal of Psychiatry
9 Rockefeller Plaza, New York City.

American Journal of Public Health
American Public Health Association, 1790 Broadway, New York 19, N. Y.

American Journal of Sociology
5750 Ellis Ave., Chicago, Ill.

American Sociological Review
U. S. Dept. of Agriculture, Washington, D. C.

American Sociologist
68 Faculty Exchange, Washington University, St. Louis, Mo.

Annals, The
American Academy of Political and Social Science, 3457 Walnut Street, Philadelphia.

XV. SOCIAL PROBLEMS AND CONDITIONS

Boy's Life
Boy Scouts of America, 2 Park Ave., New York City.

Child, The
Children's Bureau, United States Department of Labor, Washington 25, D. C.

Compass
American Association of Social Workers, 130 East 22 Street, New York 10, N. Y.

Family, The
Family Welfare Association of America, 122 East 22 Street, New York 10, N. Y.

Housing Yearbook
National Association of Housing Officials, 1313 East 60 Street, Chicago 37, Ill.

Journal of Home Economics
Mills Bldg., Washington, D. C.

Journal of Social Hygiene
1790 Broadway, New York City.

Mental Hygiene
National Committee for Mental Hygiene, 1790 Broadway, New York 19, N. Y.

Monthly Bulletin
Child Welfare League of America, 130 East 22 Street, New York 10, N. Y.

Proceedings of the National Conference of Social Work
82 North High Street, Columbus 15, Ohio.

Public Welfare
American Public Welfare Association, 1313 East 60 Street, Chicago 37, Ill.

Social Forces
University of North Carolina, Chapel Hill, N. C.

Social Research
66 West 12th Street, New York City.

Social Security Bulletin
Social Security Board, Federal Security Agency, 1825 H Street, N.W., Washington 25, D. C.

Social Service Review
University of Chicago, Chicago, Ill.

Social Studies
809-11 North 19th Street, Philadelphia.

Social Work Today
112 East 19th Street, New York City.

Social Work Year Book
Russell Sage Foundation, 130 East 22 Street, New York 10, N. Y.

Survey Graphic
Survey Midmonthly, Survey Associates, Inc., 112 East 19 Street, New York 3, N. Y.

Yearbook
National Probation Association, 1790 Broadway, New York 19, N. Y.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

PUBLIC SOCIAL WORK AND WELFARE

American Public Welfare Association, 1313 East 60 Street, Chicago 37, Ill.

Federal Security Agency, Social Security Building, Washington 25, D. C.

United Nations Relief and Rehabilitation Administration, 1344 Connecticut Avenue, N.W., Washington 25, D. C.

PRIVATE SOCIAL WORK

American Association of Social Workers, 130 East 22 Street, New York 10, N. Y.

American Association of Schools of Social Work, 1313 East 60 Street, Chicago 37, Ill.

American Federation of International Institutes, 2 West 45 Street, New York 19, N. Y.

American National Red Cross, 17th & O Sts., Washington 13, D. C.

Child Welfare League of America, 130 East 22 Street, New York 10, N. Y.

Community Chests and Councils, Inc., 155 East 44 Street, New York 17, N. Y.

Council of Jewish Federations and Welfare Funds, 165 West 46 Street, New York 19, N. Y.

Family Welfare Association of America, 122 East 22 Street, New York 10, N. Y.

International Migration Service, American Branch, 122 East 22 Street, New York 10, N. Y.

National Board, Young Womens Christian Associations of the United States of America, 600 Lexington Avenue, New York 22, N. Y.

National Catholic Community Service, 350 Fifth Ave., New York City.

National Catholic Welfare Conference, 1312 Massachusetts Avenue, N.W., Washington 5, D. C.

National Conference of Catholic Charities, 1317 F Street, N.W., Washington 4, D. C.

National Conference of Jewish Social Welfare, 67 West 47 Street, New York 19, N. Y.

National Conference of Social Work, 82 North High Street, Columbus 15, Ohio.

National Council, Young Men's Christian Associations of the United States of America, 347 Madison Avenue, New York 17, N. Y.

National Federation of Settlements, 147 Avenue B, New York 9, N. Y.

National Institute of Immigrant Welfare, 2 W. 45 St., New York City.

National Jewish Welfare Board, 145 East 32 Street, New York 16, N. Y.

National Publicity Council for Health and Welfare Services, 130 East 22 Street, New York 10, N. Y.

National Recreation Association, 315 Fourth Avenue, New York 10, N. Y.

National Refugee Service, 139 Centre Street, New York 13, N. Y.

National Social Work Council, 1790 Broadway, New York 19, N. Y.

National Travelers Aid Association, 425 Fourth Avenue, New York 16, N. Y.

National War Fund, 46 Cedar Street, New York 5, N. Y.

Salvation Army, 120 West 14 Street, New York 11, N. Y.

United Seamen's Service, 39 Broadway, New York 6, N. Y.

United Service Organizations, 1630 Empire State Building, New York 1, N. Y.

HOUSING

National Association of Housing Officials, 1313 East 60 Street, Chicago 37, Ill.

National Housing Agency, 1600 Eye Street, N.W., Washington 3, D. C.

PRISONS AND CRIME CONTROL

American Bar Assn., 1140 N. Dearborn St., Chicago, Ill.

American Civil Liberties Union, 170 Fifth Ave., New York City.

American Council of Learned Societies, 1219 16th St., N.W., Washington, D. C.

American Institute of Criminal Law and Criminology, 357 E. Chicago Ave., Chicago, Ill.

American Law Institute, 3400 Chestnut St., Philadelphia, Pa.

American Parole Association, 135 East 15 Street, New York 3, N. Y.

American Prison Association, 135 East 15 Street, New York 3, N. Y.

National Committee on Prisons and Prison Labor, 1108 16 Street, N.W., Washington 6, D. C.

National Crime Prevention Institute, 41 Press Building, 100 Washington Square, East, New York 3, N. Y.

National Jail Association, 135 East 15 Street, New York 3, N. Y.

National Probation Association, 1790 Broadway, New York 19, N. Y.

National Society of Penal Information Inc., 114 E. 30th St., New York City.

Osborne Association, 114 East 30 Street, New York 16, N. Y.

Society for the Prevention of Crime, 122 East 22 Street, New York 10, N. Y.

Women's Prison Assn., 110 Second Ave., New York City.

CHILD WELFARE

Boy Scouts of America, 2 Park Avenue, New York 16, N. Y.

Boys' Clubs of America, 381 Fourth Avenue, New York 16, N. Y.

Camp Fire Girls, Inc., 88 Lexington Avenue, New York 16, N. Y.

Child Welfare League of America, 130 East 22 Street, New York 10, N. Y.

Girl Scouts, 155 East 44 Street, New York 17, N. Y.

National Child Labor Committee, 419 Fourth Avenue, New York 16, N. Y.

National Society for Crippled Children of the United States of America, 314 Masonic Temple, Elyria, Ohio.

HEALTH

American Public Health Association, 1790 Broadway, New York 19, N. Y.

American Social Hygiene Association, 1790 Broadway, New York 19, N. Y.

National Committee for Mental Hygiene, 1790 Broadway, New York 19, N. Y.

National Health Council, 1790 Broadway, New York 19, N. Y.

National Organization for Public Health Nursing, 1790 Broadway, New York 19, N. Y.

National Society for the Prevention of Blindness, 1790 Broadway, New York 19, N. Y.

National Tuberculosis Association, 1790 Broadway, New York 19, N. Y.

FOUNDATIONS

Carnegie Endowment for International Peace, 405 West 117th St., New York City.

Carnegie Foundation, The, 522 Fifth Ave., New York City.

Commonwealth Fund, 41 East 57 Street, New York 22, N. Y.

General Education Board, 49 West 49 Street, New York 20, N. Y.

Guggenheim Foundation, 551 Fifth Ave., New York City.

Hall of Fame for Great Americans, New York University, University Heights, New York City.

Milbank Memorial Fund, 40 Wall Street, New York 5, N. Y.

Moro Educational Foundation, 475 Fifth Ave., New York City.

Rockefeller Foundation, 49 West 49 Street, New York 20, N. Y.

Rockefeller Institute for Medical Research, York Ave. and 66th St., New York City.

Rosenwald Fund, 4901 Ellis Avenue, Chicago 15, Ill.

Roosevelt Memorial Assn., 28 E. 20th St., New York City.

Russell Sage Foundation, 130 East 22 Street, New York 10, N. Y.

Twentieth Century Fund, 330 West 42 Street, New York 18, N. Y.

Woodrow Wilson Foundation, The, 8 W. 40th St., New York City.

SOCIAL AGENCIES

American Assn. of University Women, 1634 I St., N.W., Washington, D. C.

American Nurses Assn., Inc., 1790 Broadway, New York City.

American Woman's Assn., 111 E. 48th St., New York City.

General Federation of Women's Clubs, 1734 N St., N.W., Washington, D. C.

Girls Service League of America, 138 East 19th St., New York City.

National Association of Women Artists, 42 W. 57th St., New York City.

National Council of Women of the U. S., Inc., 501 Madison Ave., New York City.

National Federation of Business and Professional Women's Clubs, 1819 Broadway, New York City.

National League of Women Voters, 726 Jackson Place, Washington, D. C.

Woman's Roosevelt Memorial Assn., Roosevelt House, 28 E. 20th St., New York City.

Women's Educational and Industrial Union, 264 Boylston St., Boston, Mass.

Women's Trade Union League, 247 Lexington Ave., New York City.

DIVISION XVI

LABOR AND LABOR LEGISLATION

LABOR CONDITIONS AND LEGISLATION

By H. M. DOUTY*

BUREAU OF LABOR STATISTICS, DEPARTMENT OF LABOR

GENERAL

Substantial progress had been made by the end of 1945 in the transition to a peacetime economy. However, the production effort for war had been so great and had exercised such a decisive influence on all sectors of the economy that readjustment problems of great magnitude were inevitable.

With the collapse of Japanese resistance in August, military requirements for goods and services were sharply curtailed. Contracts aggregating billions of dollars were terminated immediately after VJ-Day, yet Federal expenditures for military purposes continued at a relatively high level for the remainder of the year, with some tapering off as demobilization proceeded.

Peak wartime employment in manufacturing was reached in 1943 and has declined continuously since that time. Production worker employment in manufacturing stood at 13,100,000 in January 1945, and declined to 11,900,000 in July and to slightly less than 10,000,000 in October. There was a fractional upturn in November. The sharp drop between July and October largely reflected cutbacks in war materials requirements. Total civilian employment in October 1945 was estimated at 51,500,000 and total unemployment at 1,600,000. The volume of unemployment by the end of the year was considerably below prior estimates. The full force of demobilization had yet to be felt, however. A major problem clearly involved the reallocation of the labor force to meet the requirements of an enlarged civilian economy.

Government control of wage and salary increases was modified on Aug. 18, 1945. All control was removed with respect to those increases that could be made within the existing price structure. Union demands for substantial wage rate increases became widespread, and led in many instances to major industrial disputes involving basic wage-price policy. These disputes were largely unresolved as the year ended.

The no-strike-no-lockout pledge was not reaffirmed after the end of the war. The complete liquidation of the National War Labor Board as an agency for the adjudication of labor disputes was scheduled for the end of the year. The President convened a labor-management conference in November to devise effective procedures to minimize work stoppages. Shortly after the close of this conference, which was only partially successful, the President proposed legislation to permit the naming of panels to make findings of fact and recommendations in disputes of national scope which threatened to develop into stoppages. Pending the enactment of legislation, fact-finding panels were appointed to investigate disputes in several industries.

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Neither of the major labor federations held a convention during 1945. The CIO participated in the formation of a World Federation of Trade Unions. There was great interest in proposed legislation to make full employment a matter of national policy. Amendments to the Fair Labor Standards Act, designed to increase the statutory minimum wage level, were the subject of extensive hearings before Congressional committees. Efforts to liberalize unemployment compensation during the reconversion period failed. Hearings on proposed legislation for health and disability insurance were scheduled for the spring of 1946.

THE LABOR FORCE

As estimated by the Bureau of the Census, the total labor force, including members of the armed forces, contained 67,500,000 persons in July 1945 and 63,800,000 in October. This reduction was caused largely by the withdrawals of school-age workers, and, with the end of the war, of persons not regularly in the labor force. Unemployment increased from approximately 1,000,000 in July to 1,700,000 in September, but declined slightly to 1,600,000 in October as the return of workers separated from war industries to civilian production gained speed.

The civilian labor force in October 1945 numbered 53,100,000 persons. A comparable figure for October 1944 can not be given at this time.[1] It is difficult to estimate the changes in the size of the civilian labor force that may be anticipated in the near future. Its size will be affected by decisions on the post-war strength of the armed forces and on the net effect of demobilization and withdrawals from the labor force.

In 1945, the labor force contained more than 7,000,000 "extra" workers; that is, persons who normally would not have sought gainful employment. These extra workers included young persons who ordinarily would have been in school or college, persons past the retirement age, and marginal workers. Many of these extra workers have already left the labor market, following the end of the war. It is unlikely that all will leave, however, and the impact of the war on the size and composition of the labor force will be felt for years to come.

NON-AGRICULTURAL EMPLOYMENT

Non-agricultural employment in November 1945, as estimated by the Bureau of Labor Statistics, was lower than the level in November 1944 by about 2,700,000 employees (Table 1). Proprietors, self-employed persons, and domestic servants are excluded from the estimates, which are not comparable with the non-agricultural employment figures shown by the Bureau of the Census in its labor force estimates.

The decline in non-agricultural employment during this period resulted largely from a sharp drop in manufacturing employment, and from smaller declines in government service and in mining. Employment in the other major industry divisions increased over the year.

Employment in manufacturing reached its wartime peak in 1943 and, with slight interruptions, has declined continuously since that time. Production worker employment stood at 13,400,000 workers in November 1944, 11,900,000 in July 1945, and a preliminary estimate of 10,000,000 in November 1945. Preliminary data indicate a slight upturn in production worker employment in manufacturing between October and November 1945.

FARM EMPLOYMENT

During the war the demands of the armed services and the opportunity for non-farm jobs accelerated the downward trend of farm employment. The number of farm family workers and hired workers combined was 11,100,000 in October 1945, 7 per cent below the level in October 1944. Part

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[1] Beginning with July 1945, the Census labor force estimates have been based on an improved interviewing procedure. Revision of estimates prior to July 1945 are now in process.

TABLE 1

NON-AGRICULTURAL EMPLOYMENT

November 1944—November 1945

(In thousands)

Industry Division	November 1944	November 1945[1]
Total[2]	38,352	35,620
Manufacturing	15,602	12,015
Mining	812	794
Contract construction and Federal force account construction	635	993
Transportation and public utilities	3,772	3,828
Trade	7,295	7,560
Finance, service, and miscellaneous	4,323	4,863
Federal, state and local government, excluding Federal force account construction	5,913	5,567

Source: Bureau of Labor Statistics.

[1] Preliminary.

[2] Estimates include all full- and part-time wage and salary workers in non-agricultural establishments who were employed during the pay period ending nearest the 15th of the month. Proprietors, self-employed persons, domestic servants, and personnel of the armed forces are excluded.

of the 14 per cent decline in the number of hired workers is attributable to unusually heavy rains in the fall of the year, which impeded harvesting in many parts of the country.

Decreases in agricultural employment occurred in all regions of the United States except New England, where there was a slight increase. The greatest percentage decline was among hired farm workers who form about one-fourth of the total number of workers. While farm employment continued to decline in almost every month of 1945 as compared with corresponding months of 1944, the volume of agricultural production for 1945 was almost as large as the record production attained the previous year.

WEEKLY HOURS

Weekly hours in manufacturing industry as a whole averaged 45.6 in December 1944, the highest average recorded for any month during the war period. For the entire year of 1944, hours worked averaged 45.2 per week. There was a gradual decline in average hours worked in manufacturing during the first seven months of 1945, the average in July being 44 hours. With the end of the war, shorter work-schedules were instituted in many plants, and weekly hours averaged 41.6 in October.

Throughout the war, average weekly hours were higher in the durable than in the non-durable goods industries. In January 1945, for example, weekly hours averaged 45.4 in all manufacturing, 46.8 in durable goods, and 43.4 in non-durable goods. With the end of the war, average hours in durable goods fell more sharply than in non-durable, with the result that by October there was no material difference in the level of hours in these two broad divisions of manufacturing industry. Table 2 summarizes the changes in hours in manufacturing.

The end of the war produced, in general, slight reductions in the level of average weekly hours in those non-manufacturing industries for which data are available. There was a sharp drop in average hours in the Federal service, however, as the standard work week was reduced from 48 to 40 hours.

War Manpower Commission 48-hour directives were rescinded with the end of the war. At least in manufacturing, a general return to a standard 40-hour week may be anticipated. It is likely, however, that an appreci-

TABLE 2

AVERAGE WEEKLY HOURS IN MANUFACTURING

1944–1945

Year and Month	All Manufacturing	Durable Goods	Non-durable Goods
1944 (average for year)	45.2	46.6	43.1
1945			
January	45.4	46.8	43.4
July	44.0	44.9	42.8
October[1]	41.6	41.8	41.5

[1] Preliminary.

Source: U. S. Bureau of Labor Statistics.

able amount of overtime will be worked in many manufacturing industries until current shortages of goods have been eliminated.

EARNINGS IN 1945

Average weekly earnings of production workers in all manufacturing reached a wartime high of $47.50 in January 1945. In the durable goods group of industries, which includes ordnance, aircraft, and shipbuilding, weekly earnings averaged $53.54 during this same month. Workers in the non-durable goods industries averaged $38.66 in January 1945 (Table 3). By July 1945, the level of weekly earnings in all manufacturing had declined by about $2, owing almost entirely to a decline in the durable goods division.

With the end of the war, average weekly earnings fell abruptly in durable goods, the decline amounting by October to more than $6 in comparison with July and to more than $9 in comparison with January. The decline in the level of weekly earnings in nondurable goods was relatively small. The reduction in average weekly earnings in manufacturing as a whole (about $6.50 between January and October) was owing primarily to reductions in hours and to a declining proportion of workers in the relatively high-wage industries.

Basic wage rates did not decline during the year. In fact, the level of straight-time average hourly earnings in manufacturing advanced by about 2 cents between January and October, after correction for the influence on the level of earnings of shifts in the distribution of workers among industries. The semi-annual index of urban wage rates in manufacturing, prepared by the Bureau of Labor Statistics, increased by 1.6 per cent between October 1944 and April 1945 and by 1 per cent between April 1945 and October 1945. It appeared likely at the year's end that wage rate increases would be secured in large segments of manufacturing industry during 1946.

As pointed out in the previous section, there were only slight reductions in the level of hours after the war in those non-manufacturing industries reporting hours and earnings to the Bureau of Labor Statistics. Average weekly earnings appeared, on the whole, to be somewhat higher in these industries in October 1945 than in October 1944, with the average in the former month ranging from $24.12 in the general merchandise division of retail trade to $64.80 in brokerage establishments. Gains in wage rates during the year were greater in non-manufacturing than in manufacturing, on the basis of data compiled by the Bureau of Labor Statistics on wage rate changes in selected non-manufacturing industries. Earlier wartime increases, however, had been larger in manufacturing than in most of the non-manufacturing industries.

TABLE 3

EARNINGS AND HOURS IN MANUFACTURING, 1944-1945

Year and Month	All Manufacturing			Durable Goods			Nondurable Goods		
	Average Weekly Earnings	Average Hourly Earnings	Average Weekly Hours	Average Weekly Earnings	Average Hourly Earnings	Average Weekly Hours	Average Weekly Earnings	Average Hourly Earnings	Average Weekly Hours
1944 (average for year)	$46.08	$1.019	45.2	$52.07	$1.117	46.6	$37.12	$0.861	43.1
1945:									
January	47.50	1.046	45.4	53.54	1.144	46.8	38.66	.891	43.4
July	45.45	1.033	44.0	50.66	1.127	44.9	38.59	.902	42.8
October[1]	41.02	.985	41.6	44.38	1.063	41.8	37.72	.909	41.5

Source: Bureau of Labor Statistics.

[1] Preliminary.

FARM WAGE RATES

Farm wage rates in 1945 reached record levels. The average rate in October 1945 was 182 per cent higher than the October average for 1935-39. The average rate rose 9 per cent between October 1944 and October 1945. Farm wage rates prior to the war, however, had risen considerably less than wages in most other fields of employment. The average farm wage rate for the years 1935 to 1939 was only 18 per cent higher than the average for 1910 to 1914. During the same period, the hourly earnings of factory workers increased almost 200 per cent, and their weekly earnings rose more than 100 per cent although weekly hours declined sharply.

Estimates made by the Bureau of Agricultural Economics of quarterly farm rates in the United States by four types of payment indicate that the increases in rates between October 1944 and October 1945 were slightly higher for those paid by the month than by the day. During this period the average rate per day without board rose approximately 8 per cent, from $4.08 to $4.39, and the average rate per day with board increased 7 per cent, from $3.72 to $3.98. The increase in the average rate per month without board was from $86.80 to $95.70, and with board from $76.40 to $84.00, or a rise for both types of about 10 per cent.

There was a wide state range, from $2.30 in South Carolina to $8.80 in Washington, in October 1945, in the average farm rate per day without board. These figures reflect differences in types of work and degrees of skill as well as regional variations in wage scales. Where roughly comparable types of work are considered, the range of difference is appreciably less. For example, the average wage rates for picking 100 pounds of seed cotton on Nov. 1, 1945 ranged from $1.70 in Alabama and Georgia to $2.30 in Arizona and North Carolina. Other factors affecting state differences include sex and age of workers, available supplies of workers and, currently, the degree of public control of farm wage rates.

The ending of the war saw a general relaxation of wage controls in industry, but larger segments of agricultural wages were subjected to regulation during 1945 than during any previous period since controls were authorized in 1942. The new controls in agriculture were largely those which set specific maximum rates for particular groups and areas. For example, maximum wage ceilings established in September and October following the end of the war may be illustrated by those for picking, pulling, and snapping cotton in 21 Arkansas counties; for harvesting apples in Yakima County, Washington; for topping and loading sugar beets in seven Idaho counties; for harvesting potatoes in Baker County, Oregon; and for dry-pack harvesting of lettuce in Maricopa County, Arizona.

MODIFICATION OF WAGE AND SALARY CONTROL

Between Oct. 2, 1942 and the end of hostilities, all changes in wages or salaries in private industry other than agriculture were subject to control by the National War Labor Board, the Salary Stabilization Unit of the Treasury Department, or the National Railway Labor Panel. Wage or salary increases were approved only on the basis of well-defined criteria. Despite the existence of a necessary measure of flexibility in the control program, substantial stability in the basic wage rate structure of American industry was achieved.

Executive Order No. 9599, issued Aug. 18, 1945, resulted in decisive modification of the system of control. This order provided, in substance, that wage or salary increases that would not provide the basis for increases in price ceilings, or would not increase the cost of goods or services to government procurement agencies, could be made without approval. Thus, employers and workers immediately after the war were free to arrive at any upward wage adjustment within the existing price structure.

Approval by the appropriate stabilization agency was still required, however, for wage or salary increases that would provide the basis for price increases or increased cost to the Government. Executive Order No. 9651 (Oct. 30, 1945) and Regulations of the Office of Stabilization Administrator (Dec. 6, 1945) set forth in some detail the grounds on which wage increases would be approved in price relief cases. These grounds were: (1) increases required to compensate in terms of straight-time average hourly earnings for the increase in the cost of living between January 1941 and September 1945; (2) increases necessary to correct inequities in wage rates or salaries among plants in the same industry or locality; (3) increases in industries in which wage rates or salaries are inadequate to the recruitment of needed manpower for reconversion. Moreover, after a reasonable period, normally not less than six months, even unapproved wage increases can be taken into account for price purposes.

The nature of the new wage policy was explained by President Truman in a radio address on Oct. 30, 1945. The President emphasized the importance of maintaining control over prices during the reconversion period, but stressed also the desirability of wage rate increases within the framework of the existing price structure.

In his message to Congress on Sept. 6, the President had pointed to the significance for price and wage policy of the lower unit costs anticipated after reconversion on the basis of full post-war production and rising productivity.

GUARANTEED ANNUAL WAGES

The Advisory Board of the Office of War Mobilization and Reconversion (OWMR) was directed by President Roosevelt in March 1945 to survey "the whole question of guaranteed wage plans and the possibility of their future development in American industries as an aid in the stabilization of employment and the regularization of production."

The President's request was an outgrowth of one of the union's demands in the steel wage case that came before the National War Labor Board in November 1944. The union proposed that the steel companies guarantee weekly wages during the contract period to the workers then employed. In its decision, the Board recommended to the President that, in view of the lack of adequate information on the subject, a thorough study be made by some governmental agency.

As part of this overall study, the Bureau of Labor Statistics of the U. S. Department of Labor is conducting a survey of specific establishments that have experimented with guaranteed wage plans for all or part of their non-executive employees. The main object of this study is to find out how effective these plans have been, what methods have been used to make them work, and what conditions within and outside the industry have contributed to success or failure.

CHANGES IN CONSUMERS' GOODS PRICES

The consumers' price index compiled by the Bureau of Labor Statistics measures average changes in the retail price of goods, rents, and services used by moderate income families in large cities. In October 1945, this index, formerly called the cost of living index, stood at 128.9 (1935-39=100). This was 2.4 points, or 1.9 per cent, higher than in October 1944, and 27.9 per cent higher than in January 1941, the base date of the "Little Steel" wage formula.

The report of the President's Committee on the Cost of Living called attention to the fact that the index fails to reflect fully the effect of such wartime factors as lowered quality, disappearance of low-priced goods, forced changes in housing, and eating away from home. The Committee estimated, as of September 1944, that the index for the average of large cities would be increased by three to four index points if these and other increases were fully reflected. If small cities were included in the national average, an additional one-half point should be added. If account is also taken of continued deterioration in quality and disappearance of low-priced merchandise between 1944 and

1945, it seems probable that an overall adjustment of five points should be added for the period January 1941 to September 1945.

In line with the above considerations and with the concurrence of the Bureau of Labor Statistics, the Office of Economic Stabilization issued a statement for wage stabilization purposes on Dec. 6, 1945, to the effect that the official figure for the increase in cost of living from January 1941 to September 1945 would be 33 per cent.

Price increases of consumers' goods during 1945, although moderate, were general in character. Gas and electricity were the exceptions, the combined items showing a decrease of 0.8 per cent between October 1944 and October 1945. All other items showed increases ranging from 1.4 to 4.5 per cent.

The indexes for various groups of commodities in October 1945 were as follows (1935-39=100):

All items	128.9
Food	139.3
Clothing	148.3
Rent (September 1945)	108.3
Fuel, electricity and ice	110.6
Gas and electricity	95.0
Other fuels and ice	125.7
Housefurnishings	146.6
Miscellaneous	124.5

INDUSTRIAL INJURIES

The industrial injury frequency rate, which is the average number of disabling injuries for each million employee-hours worked, averaged 17.4 in manufacturing for the first three quarters of 1945. This is substantially below the average of 18.4 for the year 1944. The rate for the third quarter of 1945 was 18, considerably above the rate of 17.3 for the first, and 16.9 for the second quarter, and probably reflects the beginning of the changeover from war to civilian production and the resulting shifts in the labor force. Certain of the war industries, such as explosives and some types of ordnance manufacture, had particularly low injury-frequency rates. It was almost inevitable that some workers in these branches of industry should find peacetime employment in industries with higher injury rates.

As had been true in the past, certain of the apparel industries had the lowest frequency rate, while the highest rates were found in the lumber-working industries.

LABOR TURNOVER

The end of the war with Japan produced an immediate and very large increase in the labor turnover rate; by way of contrast, the turnover rate had been little affected by the end of the war in Europe. It should be noted that the voluntary quit rate was not immediately affected by the end of the war with Japan, the main effect being on lay-offs and hires.

Separations per 100 employees in all manufacturing industries combined increased from 7.7 in July to 17.9 in August, primarily because of an increase in lay-off rate of from 1.5 to 10.7 employees per 100. The slight increase in the quit rate was scarcely more than seasonal, which would seem to indicate that the large volume of voluntary separations that were expected after VJ-Day either did not materialize or were concealed in the immediate reductions in force which took place. Total separations per 100 employees dropped to 12 in September and to 8.7 in October, while the accession rate rose from 5.9 in August to 7.4 in September, and 8.6 in October, which was the highest rate since October 1942.

As might be expected, the major increase in separations occurred in the manufacture of all types of ordnance, with separation rates of 48.4, 29.9, and 26.2 in August, September, and October, respectively, and explosives with rates of 39.2, 44.6, and 21.4 for the same three months. The separation rate for transportation equipment, which includes the manufacture of aircraft and ships, was 38.4 in August, 29.9 in September, and 19.1 in October.

In all groups, women were separated at a faster rate than men, while men were hired in greater numbers than women. In August 1945, the separation rate per 100 workers was 24.8 for women, 14.6 for men; in September, 15.8 for women, 11.1 for men. By October, with the levelling off of the separation rate, the rate for women was 9.8 as compared with 8.1 for men.

WORK STOPPAGES IN 1945

Any picture of strikes and lockouts in the year 1945 should be viewed in two parts: (1) the war period with numerous spontaneous and unauthorized stoppages, most of them small and of short duration, and (2) the post-war months with several large, comparatively long and stubborn strikes together with numerous small ones. Although the total number of work stoppages in 1945 was smaller than in 1944, the number of workers involved and the amount of resulting idleness were greater in 1945 than in any year since 1919.

As this statement is written complete figures for 1945 are not available. Estimates by the Bureau of Labor Statistics for the first 11 months, however, show 4.560 work stoppages, 3,180,000 workers involved, and 26,980,000 man-days idle. Corresponding figures for 1944 were 4,692 stoppages, 2,024,000 workers involved, and 8,334,000 man-days idle. About 30 per cent of the work stoppages during this 11-month period took place in September, October, and November. These stoppages included 45 per cent of the total workers involved, however, and accounted for 65 per cent of the total idleness. Idleness during work stoppages in the first 11 months of 1945 was estimated at 0.35 per cent of the available working time—0.16 per cent in the first eight months and 0.98 per cent in the September-October-November period. In the year 1944 it was 0.09 per cent; in 1943 it was 0.15 per cent; the average for the years 1935 to 1939 was 0.27 per cent with 0.43 per cent for 1937, the highest for any year for which this type of information is available.

In the first eight months of 1945, as in the preceding war years, most of the work stoppages were small and of short duration. Labor's no-strike pledge was in effect and few if any strikes were authorized by the unions. After the termination of hostilities in August, however, strikes were more difficult to settle and were consequently of longer duration on the average. Whereas many of the stoppages during the war resulted from minor disputes, misunderstandings, and adjustments, many of those after VJ-Day involved basic economic factors, such as the relation between wages, prices, and profits. Loss of overtime work, shorter hours, and downgrading resulted in substantial reductions in take-home pay of many workers whose living standards were already adversely affected by wartime shortages of goods and high prices. These factors are largely responsible for the increased intensity and duration of work stoppages since VJ-Day.

Wages continued to be the most important issue in labor-management disputes during 1945. Among the more important stoppages over wage issues were: (1) 75,000 bituminous coal miners in April in connection with the renewal of the industry-wide agreement, (2) over 60,000 anthracite miners in May, (3) 40.000 textile workers in New York, New Jersey, and Pennsylvania in late September, (4) about 35,000 oil industry workers in September, demanding 52 hours pay for 40 hours work, (5) 30,000 lumber workers in the Pacific Northwest during the last three months of the year, demanding a minimum of $1.10 per hour, and (6) about 200,000 General Motors Corporation employees beginning their strike in November for a 30 per cent wage increase.

The question of union recognition for foremen and supervisory workers was the issue in a stoppage involving over 200,000 bituminous coal mine workers in September and October. Strikes of foremen, involving substantial numbers of workers, occurred also in the rubber industry.

Rivalry between AFL and CIO unions threatened to interfere drastically with reconversion plans in the automobile industry when approximately 40,000 Detroit workers were idle in June because of a dispute as to which unions should have jurisdiction over reconversion construction work and installation of new machinery. This stoppage was settled when AFL and CIO representatives agreed to the establishment of a local joint committee to adjust the difficulty and the establishment of a national committee to which unsettled points could be referred—the same procedure to be followed for any similar disputes in other localities.

LABOR-MANAGEMENT CONFERENCE

Shortly after the end of the war, President Truman issued a call for a labor-management conference. The conference call was motivated largely by the desire to find a substitute for wartime machinery for the settlement of industrial disputes.

The conference met in Washington from Nov. 5 through Nov. 30. Unlike its predecessor—the Industrial Conference convened by President Wilson in 1919 to deal with a similar set of problems after the First World War—the labor-management conference attained at least half of the objectives set for it by the President. Hope for further areas of agreement was seen in the unanimous decision to establish a standing committee made up of the heads of participating labor and industry groups that would continue its efforts to arrive at "friendly understandings in the public interest."

The conference was composed of 39 members, 18 representing the employers, 18 representing labor, and three the general public. The management representatives were selected in equal numbers from the United States Chamber of Commerce and the National Association of Manufacturers. The 18 labor representatives were chosen as follows: eight by the American Federation of Labor, eight by the Congress of Industrial Organizations, one by the United Mine Workers, and one by the Railway Brotherhoods. The three public, non-voting representatives were: Secretary of Labor Schwellenbach; Secretary of Commerce Wallace; and Walter P. Stacy, Chief Justice of the Supreme Court of North Carolina, chairman of the conference. Dr. George W. Taylor, former chairman of the National War Labor Board, acted as conference secretary. In an address at the opening of the conference, President Truman set its goal as the formulation of "a broad and permanent foundation for industrial peace and progress."

The conference debated the problems on the agenda in full session and in the following six sub-committees: (1) conciliation services, (2) initial collective agreements, (3) existing collective agreements, (4) collective bargaining, (5) management's right to manage, and (6) representative and jurisdictional questions.

The conference reached unanimous agreement on the reports of the first three named committees, which in substance provided that (a) the United States Conciliation Service should be strengthened so that it may be more widely utilized for the peaceful settlement of disputes; (b) "negotiation for new contracts should use every means at hand, including mediation and voluntary arbitration, before strikes are permitted"; (c) disputes involving interpretation of provisions of collective bargaining contracts should be settled through voluntary arbitration. There was also unanimous agreement to the effect that "no discrimination in employment due to race, color, creed, or sex" shall become the accepted policy of American industry.

No agreement was reached on collective bargaining, management's right to manage, and jurisdictional disputes. The committees that dealt with these problems submitted separate labor and industry reports. Among the specific questions at issue were industry proposals calling for government control of unions to insure labor and industry "equality before the law," and for "appropriate guarantees to insure complete and effective compliance with provisions prohibiting strikes, lockouts, or boycotts."

Both groups also failed to agree on a clear definition of management's prerogatives. Labor members took the position that there can not be sharply defined areas designated as management's prerogatives and labor's prerogatives "without either side constantly attempting to invade forbidden territory, thus creating much unnecessary strife." Labor's spokesmen also argued that "the responsibilities of one of the parties today may well become the responsibilities of both parties tomorrow." Industry members replied that "the labor members are convinced that the field of collective bargaining will in all probability continue to expand into the field of management." The industry view was that "the only possible end of such a philosophy would be joint management of enterprise. To this the management members can not naturally agree. Management has functions that must not and can not be compromised in the public interest."

That the conference did not fulfill the expectations of the President, especially its failure to recommend a plan for averting work stoppages when collective bargaining and mediation failed, is evident from the fact that three days after its adjournment he asked Congress to enact a bill to permit the establishment of fact-finding boards in national disputes, with no work stoppages during the period of the work of the boards and for five days thereafter. Commenting on the Conference, the President said in his message to Congress: "The very fact that the top leaders of labor and management have met and worked together for more than three weeks is itself some progress." He also characterized as "valuable" the agreements reached, but he expressed his disappointment that the conference "was unable to attain the objectives most necessary to successful reconversion."

DEVELOPMENTS IN ORGANIZED LABOR

According to the most recent estimates, there was an increase in total union membership from 13,750,000 in 1944 to 14,600,000 in 1945. Dues-paying membership undoubtedly declined during the latter part of 1945, however, as war production was sharply curtailed. Both the United Automobile Workers (CIO) and the International Association of Machinists (AFL) experienced heavy losses in aircraft. Unions in the shipbuilding and metal trades industries generally were affected by war production cutbacks and production delays incident to reconversion.

Both of the major labor organizations—American Federation of Labor and Congress of Industrial Organizations—were compelled to abandon their annual conventions in 1945, because of wartime restrictions on travel. The executive boards of both bodies decided to extend the tenure of their national officers until the 1946 regular conventions.

Other significant developments in CIO were: (1) the chartering of two new Internationals—Utility Workers' Union of America, which is a combination of the former Utility Workers' Organizing Committee, Brotherhood of Consolidated Edison Workers, and other former affiliates of the Independent Utility Workers Union—and the United Paper Workers of America; (2) amalgamation of the Federation of Architects, Engineers, Chemists, and Technicians (8,000 members) with the United Office and Professional Workers (51,000); (3) amalgamation of the United Federal Workers (30,000) with the State, County and Municipal Workers (45,000); (4) affiliation of the International Air Line Mechanics Association, an independent union, with the United Automobile Workers; (5) participation in the formation of the World Federation of Trade Unions, described below.

Among the major developments in the AFL were: (1) suspension of its largest affiliate—the International Association of Machinists (750,000)—for non-payment of dues as a result of jurisdictional disputes with other AFL affiliates; (2) chartering of two new Internationals—the Office Employees' International Union, and the International Chemical Workers' Union, and (3) reaffiliation of the International Typographical Union.

There was no convincing evidence during 1945 that the division between the AFL and CIO would be bridged in the near future. The United Mine

Workers remained independent, despite recurrent reports of imminent affiliation with the AFL.

FORMATION OF WORLD FEDERATION OF TRADE UNIONS

A new international labor center—the World Federation of Trade Unions (WFTU)—was launched at the Second World Trade Union Conference held in Paris from Sept. 25 through Oct. 8 by delegates from 65 national labor federations with an estimated membership of about 66,000,000 workers in 56 countries. The Congress of Industrial Organizations played a prominent role in the formation of the new body. The American Federation of Labor, however, refused to participate in its organization. The WFTU, in effect, supplants the 44-year old International Federation of Trade Unions (IFTU) with which the AFL was affiliated. The constitution of the IFTU provided for the affiliation of only one national labor federation from each country; representation was denied the Soviet unions on the ground that they were not independent of the Soviet Government.

The origin of the WFTU is at least two-fold. The Anglo-Soviet Trade Union Committee, formed soon after Hitler's attack on Russia, proposed that a world trade union conference be held. This proposal received the approval in 1943 of the British Trade Union Congress. There was parallel action at various conventions of the CIO beginning in 1941. Arrangements were finally made for the conference to meet in London in February 1945.

Of the four American trade union bodies invited—Congress of Industrial Organizations, American Federation of Labor, Railroad Brotherhoods, and United Mine Workers—only the first named accepted the invitation to the London Conference. The CIO, in announcing its acceptance through President Murray, stressed its lack of representation in the international trade union movement, and indicated that the CIO delegation would press for a new permanent world labor body, unless the IFTU would revise its constitution so that it might become a member. The refusal of the AFL to take part in the conference was owing mainly, as stated by President Green, to the inclusion of the Russian unions, "which are not free trade unions in the American sense of that term," and to the issue of an invitation to the CIO which the AFL considers a dual or rival organization.

The main objective of the First World Trade Union Conference was to lay the basis for the new world labor federation while the chief business of the second conference was to effect its organization. As constituted, the WFTU will operate through the following organizational structure: (1) World Trade Union Congress—a biennial meeting of delegates from affiliated national labor federations—is the highest governing body of the WFTU; (2) the General Council, consisting of at least one representative designated by each affiliate, meeting at least once a year, is charged with carrying out the decisions of the Congress; (3) the Executive Committee, composed of 26 members elected by the Congress, will direct the affairs of the WFTU between meetings of the General Council; and (4) the Executive Bureau of nine members, made up of a president, seven vice-presidents, chosen by the Executive Committee from among its members, and the general secretary of the WFTU. The general secretary, and three assistant general secretaries, appointed by the Executive Committee, are the chief administrative officers of the WFTU.

The major objective of the WFTU, as stated in the preamble to its constitution, is "to improve the living and working conditions of the people of all lands." This is to be accomplished through the following designated functions of the new world federation: (1) to organize and unite the trade unions of the world; (2) to carry on the struggle against all manifestations of fascism; (3) to combat war and the causes of war and to work for a stable and enduring peace; (4) to represent the interests of world labor in all international agencies concerned with world organization and world peace; and (5) to coordinate the struggle of organized workers of all countries for the improvement of their standards of living and for social security and to resist all efforts to encroach on their economic and social rights and on their democratic liberties.

In view of the fact that the constitution of the WFTU makes no mention of the International Federation of Trade Unions, and the further fact that both major officers of the IFTU, President Citrine and General Secretary Walter Schevenels, have become officers of the WFTU—the former is President of the Executive Bureau and the latter is a special assistant to General Secretary Saillant—it is generally presumed that the IFTU has in effect ceased to exist.

INTERNATIONAL LABOR ORGANIZATION

At its 1945 conference in Paris, the International Labor Organization adopted an instrument for the amending of its Constitution in such a way as to permit it to be brought into relationship with the United Nations Organization, and to stand by itself—if necessary—during the period in which the ILO will be neither a part of the old League of Nations, nor yet a specialized organization of the UNO (presumably operating under the latter's Economic and Social Council). The conference also readmitted Italy and Guatemala to membership, and accepted Iceland's application to join.

Immediately following the Paris Conference, the Organization held a preparatory Maritime Conference in Copenhagen, where a tripartite group of experts exchanged views on the elaboration, during 1946, of a convention or conventions on working conditions in the maritime occupations. An interesting development in the ILO is the creation of a series of international tripartite industrial committees to consider the human problems of basic industries. Two of these committees held their first sessions in 1945, one on inland transport and another on coal.

PENDING LEGISLATION OF NATIONAL SIGNIFICANCE

Practically all of the legislation of importance to labor introduced in the 79th Congress was still pending at the end of the year.

The "Full Employment Bill," introduced as part of the President's "must" legislation, contained in its earlier Senate versions a declaration of government responsibility for maintaining full employment, defined as opportunity for all those willing and able to work to find jobs; preparation of a "national budget" indicating total expenditures necessary by government, business, and consumers in order to maintain full employment; and periodic reports to a Congressional joint committee established for the purpose, with recommendations for measures to combat deflation or inflation. The House passed a substitute bill calling for promotion of high employment, production, and purchasing power, and both Senate and House versions were sent to conference committee.

Minimum Wage.—Hearings were held on legislation to set 65 cents as the minimum wage under the Fair Labor Standards Act, and a committee report is expected in January 1946.

Fact-Finding Boards.—In December the President submitted a message to Congress requesting the passage of legislation to permit the establishment of fact-finding boards in labor disputes of a national character. Disputes seriously affecting the public interest would be referred by the President to a fact-finding board within five days after certification by the Secretary of Labor. The board would have authority to subpoena persons and records and would make findings of fact and recommendations for the settlement of the dispute within 20 days, except as extensions of time were agreed to by the parties and approved by the President. Strikes would be prohibited for a period of 30 days, including the 20-day hearing period and five days thereafter.

Ball-Burton-Hatch Bill. — Other proposed legislation in the labor relations field included notably the Ball-Burton-Hatch Bill, which would transfer the United States Conciliation Service to a Federal Industrial Relations Board; would reconstitute the National Labor Relations Board as an unfair labor practices tribunal; and would provide compulsory arbitration in disputes seriously affecting the public interest. Later modifications, in the form of an amendment to the President's fact-finding legislation, would leave the organization and functions of the NLRB unchanged and remove the compulsory aspect of arbitration. Another bill, introduced by Senator McMahon and others, would enlarge the present conciliation services of the Government and make mediation, conciliation, and arbitration services more easily available to the parties to a dispute.

Strikes.—Numerous bills were submitted to repeal the War Labor Disputes Act which was intended to eliminate wartime strikes but which, in effect appeared to give them legislative sanction. Consideration of legislation to create a permanent Fair Employment Practices Committee was held up in the House Rules Committee, with a discharge petition being circulated. The Senate FEPC bill was reported out of committee and is pending on the calendar. The Hobbs "anti-racketeering" bill was passed by the House and sent to the Senate. It provides that interference with trade and commerce by robbery and extortion shall be a felony. Debate on the bill centered about its application to labor organizations.

Social Security.—In the area of social security and public services, several important measures were submitted. Efforts to liberalize unemployment compensation during the reconversion period met strong opposition, and the House Ways and Means Committee voted not to report the bill. Similar opposition was encountered in attempts to retain during reconversion the wartime Federal administration of public employment offices. The President vetoed an appropriations bill (H. R. 4407) which contained a rider returning the employment offices to the states within 100 days after enactment.

Health.—On Nov. 19 the President submitted a message requesting a health program that would include hospital construction, medical research, expansion of maternal and child health programs, and inclusion of health insurance and disability insurance in the social security system. The health features of the early Wagner-Murray-Dingell social security bill (S. 1050, H. R. 3293) were reintroduced (S. 1606), with the exception of hospital construction, for which a separate bill was passed by the Senate and sent to the House. Hearings on the health bill were scheduled for March 1946. S. 1050 would have extended almost universal coverage under the social security system. Extended hearings on housing legislation were still going on as an emergency "housing expediter" was appointed by the President in December to deal with this pressing problem. An appropriation measure, including $191,000,000 for temporary housing for veterans, was sent to the President.

STATE LABOR LEGISLATION

Forty-four states met in regular legislative session during 1945. The following brief summary of state labor legislation enacted during 1945 was prepared by the Division of Labor Standards of the Department of Labor.

Workmen's Compensation. — Thirty-seven states enacted legislation affecting workmen's compensation laws. Notable progress was made in establishing second injury funds to aid in the employment of handicapped workers and injured war veterans. With the addition of 13 new laws enacted this year, 32 states now have second injury funds. Four states for the first time provided protection against occupational diseases; 32 states now provide compensation for industrial diseases. Nineteen states raised the level of benefit payments. Six states increased the amount or duration of medical aid. Some gains were made in extending coverage of the laws.

Industrial Relations.—Connecticut passed the first Little Wagner Act since 1941, and Puerto Rico and Hawaii adopted comprehensive industrial relations laws. A "right-to-work" law and proposed constitutional amendments were passed in South Dakota, bringing to three the number of states prohibiting closed shop agreements. Rhode Island expanded the seniority rights of veterans. New York and New Jersey were the first two states to approve laws designed to eliminate discriminatory employment practices with regard to race, creed, color, national origin or ancestry. The laws specify a number of prohibited practices of employers, employment agencies, and labor organizations.

Wages and Hours.—Rhode Island became the third state to extend minimum wage coverage to men by amending its minimum wage law for women and minors. Hawaii amended its Wage and Hour Act to increase the minimum hourly wage rate from 30 to 40 cents and extended coverage to include agricultural workers and several other groups of workers. Nevada amended its minimum wage law for women to increase the daily minimum from $3 to $4, and the weekly minimum from $18 to $24. Massachusetts enacted a law prohibiting wage differentials based on sex for work of comparable character. Eight laws limiting the period in which workers may begin suits for recovery of wages were enacted; these statutes affect both state and Federal wage claim laws.

Child Labor.—Appreciable gains in child labor legislation appeared for the first time during the war years. Illinois passed a complete new child labor law which included a 16-year minimum during school hours and 14 outside school hours in factories and other specified establishments. Other gains included raising of the minimum age in general employment from 14 to 15 and prohibiting employment under 18 in certain hazardous occupations in Maine, limiting hours of work of students under 17 outside of school hours in New York, prohibition of night work for minors 16 and 17 years of age in Rhode Island, strengthening the law relating to agricultural work in Hawaii, and extension of workmen's compensation to illegally employed minors in Iowa and Minnesota.

Apprenticeship.—Six states and Hawaii strengthened their apprenticeship laws.

Safety and Health.—Two states authorized their State Labor Department to make and enforce safety regulations. Eight states strengthened provisions of their coal mining laws.

New Jersey enacted a measure of importance to migratory laborers. A Division of Migrant Labor was created within the Department of Labor with broad authority to establish standards for the protection of living conditions and promotion of the health and welfare of a group almost universally outside the bounds of protection under state law.

COURT DECISIONS AFFECTING LABOR DURING 1945 [1]

Restraint of Trade.—The United States Supreme Court in two decisions dealt with union activities in relation to the Sherman Act. In the case of the Allen Bradley Co. *v.* Local Union No. 3, International Brotherhood of Electrical Workers (323 U. S. 707, June 18, 1945) the Court held that when a union participates in effecting a business monopoly, it becomes a "copartner" in an unlawful restraint of trade and is subject to the Sherman Act, together with the employer. Union activities to make the New York City area a closed-shop area would have been legitimate under the Clayton Act exempting labor-union activities from coverage under the Sherman Act; but the banding together of contractors, manufacturers, and union to create a monopoly in the area made the union a partner to the Sherman Act violation.

In a case reported simultaneously (Hunt *v.* Crumboch, 323 U. S. 704,

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[1] Some citations are incomplete because the cases had not yet been published in official reports at the time of writing.

June 18, 1945), the Court, in a 5-to-4 decision, held that the union was not in violation of the Sherman Act when it put a trucking company out of business by refusing, after a labor dispute in which a union member was killed, to supply union workers to the company. The union at the same time refused union membership to anyone working for the company, and executed agreements with several large companies whereby trucking and hauling companies serving them were required to employ union men, thus barring the trucking company against which it had the grievance from participating in such handling and forcing it out of business. The Court declared that a labor union may sell its services when and where it pleases. The minority viewed the case as similar to the Allen Bradley case in that the union joined with businessmen to drive a firm out of business, thus reducing competition in interstate commerce.

Definition of Working Time.—During 1945 there were a number of decisions defining what activities constitute time worked under the Fair Labor Standards Act. Travel time in mines was considered work time by the United States Supreme Court in the Jewell Ridge Coal Corp. case (Jewell Ridge Coal Corp. *v.* Local No. 6167, United Mine Workers of America, 325 U. S. 161, May 7, 1945), following the principle laid down in Tennessee Coal and companion cases early in 1944. The Supreme Court also ruled that time spent by firemen on duty and subject to call was work time, (Armour & Co. *v.* Wantock, 323 U. S. 126, Dec. 4, 1944). Roll call and inspection time were called hours worked in the case of Edmondson *v.* Yellow Truck & Coach Co. (—— Fed. Supp. ——). In another case time spent by piece workers in oiling machines and sorting and attaching work tickets to record sheets was called working time (Walling *v.* Frank, *et al.*, d. b. a. Frank Bros., Dist. Ct. W. D. Kentucky, Sept. 11, 1945).

Veterans.—The job rights of veterans under the Selective Training and Service Act were considered in several cases. The right of a veteran to hold his former job for at least one year, as provided by the act, was upheld by a Brooklyn Federal Court in an August decision (Fishgold *v.* Sullivan Drydock & Repair Corp., 62 Fed. Supp. 25, Aug. 30, 1945). The union involved, however, is taking an appeal. The District Court of Massachusetts ruled that, when two veterans apply for the same job they both held at different times before induction, the employer is obligated only to the first holder of the job (Solymon *v.* London Coat of Boston, Inc. ——, Sept. 25, 1945). A veteran who was ordered reinstated in his former job was awarded back pay for the period of court proceedings in the case of Kay *v.* General Cable Corp., (—— Fed. Supp. ——, March 5, 1945).

Discrimination.—In two California cases it was ruled that a union must open membership to all on equal terms or lose its closed-shop privileges (California Supreme Court in James *v.* Marinship Corp., 155 Pac. (2d) 329, Dec. 1944; California Superior Court in Blackeney *v.* California Shipbuilding Corp., ——, June 4, 1945). In June the New York State anti-discrimination law was held by the United States Supreme Court not to conflict with the Federal Constitution or with congressional authority over postal matters, as was argued by the union which desired to limit membership to eligible postal clerks who were Caucasians or native American Indians (Railway Mail Assn. *v.* Corsi, 65 Sup. Ct. 1483, June 18, 1945).

Union Regulation by States.—During 1945 there were a number of court tests of the constitutionality of state laws regulating and restricting union activities. Section 5 of the Texas law, requiring union organizers to obtain an organizer's card before soliciting members, was held invalid in a particular case because it imposed an improper restraint on the right of free speech and assembly (Thomas *v.* Collins, 65 Sup. Ct. 315, Jan. 8, 1945). Sections 4 and 6 of the Florida law, requiring licensing of business agents and the making of annual reports, were declared unconstitutional because of the penalty imposed (Hill *v.* Watson, —— U. S. ——, June 11, 1945). A union failing to comply with registration requirements would be enjoined from functioning as a labor union, which action the Court held would be in violation of the Wagner Act. A case involving the constitutionality of the Florida "right to work" amendment to the state constitution is on appeal before the United States Supreme Court. The amendment makes unlawful the denial of the right to work on account of membership or non-membership in any labor organization.

EMPLOYMENT CONDITIONS AND STATISTICS

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GENERAL

The year 1945, hostilities having ceased on all fronts, witnessed expected employment declines, but because the end of hostilities occurred near the close of the year, 1945 does not encompass the full post-war layoff period. It rather ended with the initiation of this period.

A downward trend in total employment, reflecting maximum overall absorption of labor for war production, had begun in November 1943, at the time when more efficient use of labor, cutbacks, shifts in military requirements, and completed contracts combined to offset statistically certain continued specific or localized demands for labor. The year 1944 was a leveling-off period for employment, with a slight but persistent downward trend. Employment in munitions (including aircraft) continued to decline from the end of 1944 onward, and the impact of V-E Day on employment was less pronounced than the sharp curtailments of military needs might have suggested would be the case.

It was not until V-J Day that layoffs were sufficiently concentrated in a short span of time to be dramatic in their impact. The number of wage and salary earners (outside agriculture and domestic service) estimated to have full time or part time jobs in August 1945 was 37,015,000; by October it had dropped to 35,207,000 or 3,100,000 less than in October 1944. The greater part of the 12-month decline, it will be observed, occurred in the two months after August 1945. The unanticipated speed of demobilization beginning in September 1945 also brought into prominence the question of employment for veterans, who were being rapidly added to the available labor supply.

Until August 1945, the gradual declines in employment, especially in war industries, were not matched by rising unemployment. This may be attributed partly to the fact that those separated from employment were largely draftees, women workers, and "additional" members of the wartime labor force. While the war continued, laid-off workers were also either able to obtain jobs in civilian occupations promptly, or retired, at least temporarily, from wage-earning employment for various personal reasons.

The labor force sharply increased during the war period, the increase for most age and sex groups being in excess of the normal, which would have been about 3,000,000. It is estimated by the U. S. Department of Labor that about 7,000,000 "extra" persons were in the civilian labor force in April 1945, and that 1,000,000 or 2,000,000 of these "extras" would still be in the labor force in 1950. Increases in the number of those seeking work, stimulated by acute labor shortage or acute labor surplus (such contingencies as war or depression), are never entirely liquidated; certain proportions of the "extra" workers remain available for work. The proportion depends primarily on general employment and wage conditions; if

TABLE I

LABOR FORCE, AUGUST-SEPTEMBER 1945

(in thousands)

	August 1945	September 1945
Total labor force	66,510	64,790
Civilian labor force	54,350	52,900
Unemployed	830	1,650
Employed	53,520	51,250
Non-agricultural	44,470	42,450
Agricultural	9,050	8,800

income from employment is low, or jobs scarce, a larger proportion will continue to seek work than if family income is high.

ANALYSIS OF THE TOTAL LABOR FORCE

Tables I and II show 66,510,000 in the total labor force in August 1945, of whom 19,600,000 were women workers. The proportionate decline from August to September was greater among men than women, probably because young boys left the labor market for school in large numbers in the latter month. Of the "extra" labor force in the spring of 1945, 3,620,000 were males and 3,660,000 were females, according to Department of Labor estimates. It is assumed that about 2,500,000 of the total were youngsters attending school or of school age, and that this source will not continue to yield such large numbers in the future, in view of basic trends toward longer schooling. Of the extra women workers, about 2,600,000 were over 35 years of age, a disproportionate number from this age group. The remainder, a little more than 1,000,000 under 35, were not much in excess of the normal increase in job seekers among young women. The future labor market status of these women workers is uncertain, and depends on a number of factors, among them the return of servicemen-husbands to jobs and maintenance of the present birth rate. The marriage rate is also an important influence, since about 85 per cent of unmarried women have been normally in wage-earning employment, contrasted with only about one-third of married women. The remainder of the "extra" workers were drawn from older persons and males who are on the fringe of employability. It is assumed that a large proportion of this group will cease to seek work, becoming dependent on other sources of income.

TABLE II

LABOR FORCE: MEN AND WOMEN AUGUST 1945

(in thousands)

	Total	Men	Women
Total labor force	66,510	46,910	19,600
Civilian labor force	54,350	35,020	19,330
Unemployed	830	430	400
Employed	53,520	34,590	18,930
Non-agricultural	44,470	27,700	16,770
Agricultural	9,050	6,890	2,160

EMPLOYMENT IN MANUFACTURING

In January 1945, most of the employment decrease, a normal seasonal phenomenon, this year occurred in trade, and the total decrease in employment was less than usual. In munitions manufacturing, the increase that had occurred from November to December 1944 was sustained, but in February employment declines occurred in transportation equipment, shipbuilding, food products, and textiles. In March, further declines in munitions employment occurred, and by May the decline was substantial. Transportation equipment (including aircraft, tanks and shipbuilding) employed 1,772,000 in May as compared with the peak of 2,626,000 in November 1943, and declines continued each month thereafter. In non-munitions manufacturing month-to-month fluctuations during the year were attributable in part to normal seasonal factors but also to irregularities in supply of materials, which affected textiles, apparel, and meat-processing especially. As a consequence of V-J Day, employment of production workers in

TABLE III

INDEXES OF MANUFACTURING EMPLOYMENT

(1939 average = 100)

	All Manufacturing	Durable Goods Group	Non-durable Goods Group
1943 monthly average	154.0	193.8	122.7
1944 monthly average	169.1	231.4	119.9
1945			
January	162.4	219.4	117.4
February	162.0	218.7	117.2
March	160.2	215.5	116.5
April	156.9	210.2	114.9
May	153.6	204.1	113.7
June	150.5	196.9	113.9
July	145.6	187.8	112.3
August	142.5	181.1	112.0
September	123.2	140.1	109.9
October	121.6	136.6	109.7

factories (to which the data in Tables III and IV refer) declined by 1,250,000 in two weeks, but this loss was concentrated almost entirely in war industries. By October, total layoffs from munitions industries had leveled off. Although large declines continued in aircraft and shipbuilding, the heavy industries showed some employment increase. All the non-durable goods industries except food and chemicals showed a slight employment increase in October, and in November a further increase was reported for durable goods except transportation equipment and for most non-durable goods except food products and apparel.

TABLE IV

INDEXES OF MANUFACTURING EMPLOYMENT, BY INDUSTRY, OCTOBER, 1945 AND 1944

(1939 = 100)

	October	
	1945	1944
Total	121.6	123.2
Durable goods	136.6	140.1
Iron and steel and products	120.5	120.5
Electrical machinery	171.2	175.3
Other machinery	167.9	166.6
Transportation equipment, except autos	404.2	486.9
Lumber and timber basic products	91.8	103.4
Non-durable goods	109.7	109.9
Textiles and fiber products	90.3	90.2
Apparel and other finished textile products	100.5	99.8
Food	127.4	133.4
Chemicals and allied products	154.0	155.6

EMPLOYMENT IN MINING

Since the end of 1941, employment in bituminous coal production has been declining, owing in large measure to entrance of miners into military service. By March 1945, employment was 335,000, a drop of 31,000 from March of the preceding year. By July, the need for labor in this branch of mining had become so acute that the industry tried to obtain releases for miners in the armed services. Employment declines continued into October. The low employment index for anthracite mining in May 1945 resulted from the practically complete shutdown of the mines during contract negotiations. The July decline in metal mining employment was owing to recall by the armed services of metal miners who had been furloughed for employment in the mines. Mining employment in general, and especially employment in bituminous mining, declined in October. (See Table V.)

TABLE V

INDEX OF EMPLOYMENT IN MINING

(1939 = 100)

	Bituminous	Anthracite	Metals
January	91.3	79.0	78.2
February	91.0	79.2	77.8
March	90.2	79.0	78.4
April	82.3	77.4	77.8
May	88.2	9.7	77.3
June	89.2	78.9	76.0
July	87.1	77.6	74.6
August	87.1	77.4	73.1
September	87.6	77.6	72.2
October	64.1	n. a.	72.0
November	88.2	n. a.	73.5

EMPLOYMENT ON RAILROADS

The war reversed the pre-war trend toward shrinkage of employment by railroads, and not until 1945 was there any general slackening of the acute demand for labor in this transportation field. In 1944, a total of 3,000,000 persons were employed, of whom 1,090,000 were new entrants and 70,000 were re-entrants to this industry. The employment decline beginning in the summer of 1945 was sharply reversed in September, when pressure on railroad facilities owing to the transfer of demobilized troops became acute. (See Table VI).

TABLE VI

INDEX OF EMPLOYMENT ON CLASS I STEAM RAILROADS

(1935–39 average = 100)

Month	1945	1944	1939
January	142.0	138.3	95.2
February	142.0	139.3	95.9
March	143.0	140.6	95.6
April	141.4	140.6	93.9
May	140.4	140.2	92.7
June	140.6	139.9	95.3
July	139.2	138.4	95.7
August	139.1	139.1	96.1
September	143.1	136.3	98.1

The wartime employment record of the railroads was one of high labor turnover and searches for labor among various emergency sources: older railroad men, students, soldiers, and Mexican nationals. From June 1944 to June 1945, the separation rate from the railroad industry was 7.3 per cent per month, compared to 6.6 per cent in manufacturing. The higher rate was attributable mainly to more attractive wages and working conditions in other industries. The railroads, like the farmers, sought wartime labor from various sources that were regarded as temporary. Older workers who had retired, or would normally have done so soon, were employed, and the Railroad Retirement Board reports that 63,000 older employees were in active service at the beginning of 1945. Employment records showed, however, that most such employees stayed at work for relatively short periods, largely because they found the physical strain too great. Students were called on in the summer months, and servicemen were assigned, especially for freight handling, at various points when freight tie-ups threatened. Women replaced men in a narrowly limited group of occupations, mainly car cleaning, and, in parts of the country where acute shortages of male labor occurred, even in the jobs of track workers and brakemen. An important source of emergency labor for track work was found in Mexico, from which workers were imported on contract by arrangement with the Mexican Government. By June 30, 1945, the Railroad Retirement Board reports, 125,464 different Mexican workers had been employed, and on that date almost 60,000 were still in the United States.

The railroads had the same experience as other large industries with employment trends in 1945. On May 10, they were placed on the "national production urgency list," denoting acute labor shortages (especially on the western roads) and in the fall, as mentioned above, total employment increased. Yet unemployment insurance activities of the Railroad Retirement Board were higher than in the preceding year, and applications almost tripled with the beginning of the new benefit year in July. Laborers formed the largest proportion of the unemployed, and, toward the end of the year, claims were received from women, over-age men, and the less productive workers. In the closing months of the year, unemployment claims were increasing at the same time that employment was rising, reflecting pronounced turnover in railroad personnel, and the slackening of other employment opportunities for the separated workers. However, again like other industries, unemployment claims from workers in this industry were below expectations in the year of the war's end.

UTILITIES AND TRADE

Employment indexes in public utilities and wholesale and retail trade

TABLE VII

INDEXES OF EMPLOYMENT IN UTILITIES AND TRADE

(1939 average = 100)

	January	April	July	September
Public utilities:				
Electric light and power	82.0	82.0	83.5	84.5
Street railways & busses	117.3	118.3	116.8	118.0
Telegraph	120.2	117.9	n. a.	121.2
Telephone	126.1	n. a.	n. a.	133.9
Trade:				
Wholesale	95.7	94.9	95.1	97.0
Retail	98.3	96.8	95.1	97.6

are shown in Table VII (from Bureau of Labor Statistics data). Despite a greatly increased load on its facilities, the electric light and power industry's employment level remained below that of 1939 throughout 1945. Other leading branches of the utilities showed fairly normal employment trends during the year, with seasonal increases in September.

Wholesale and retail trade employment, while likewise relatively less than in 1939 in each of the four months shown, increased seasonally in September and continued to grow toward the end of the year.

EMPLOYMENT IN CONSTRUCTION

Employment in construction in the continental United States increased somewhat in 1945, and in August was estimated at 1,095,000, nearly 250,000 more than a year earlier (U. S. Department of Labor). The main source of increase was in non-Federal, nonresidential construction, in which employment increased from 95,200 in August 1944 to 251,700 in August 1945. There was, however, also a slight increase in employment on private residential work.

Except for Federal employment projects, on which reports are received for both contract and force-account construction, employment data in this field are estimated by the Bureau of Labor Statistics from other construction data, especially value of work. Estimated employment in the continental United States on various types of construction is shown in Table VIII.

After August, some increased activity in non-Federal construction occurred. The wartime limitation on construction (known as Order L-41 of the WPB) was lifted on Oct. 15. Despite acute needs, both public and private, however, the industry was expanding its operations very slowly by the close of the year owing to severe shortages of construction materials and other bottlenecks.

AGRICULTURAL EMPLOYMENT

Agriculture's poor competitive position with regard to labor supply was emphasized during the war, yet even with potential farm laborers attracted by the higher standard of living in urban communities, American farms greatly increased their production with less labor than in 1935-39. The

TABLE VIII

ESTIMATED CONSTRUCTION EMPLOYMENT

(in thousands)

	August 1945	August 1944
Total new construction	1,095.6	875.1
At site	953.8	720.7
Federal	200.0	228.1
Non-Federal	753.8	492.6
Residential Buildings	170.9	107.1
Non-residential buildings	251.7	95.2
Farms	142.2	141.9
Utilities	130.5	95.4
Streets and highways	35.7	38.1
Miscellaneous	22.8	14.9
Other	141.8	154.4
Road maintenance	93.0	95.8

explanation was that more working hours were put in.

The United States Department of Labor reported on wartime changes in agricultural employment in the *Monthly Labor Review* for September 1945. During the war, agricultural employment shrank as a proportion of total employment.

TABLE IX

AGRICULTURAL AND NON-AGRICULTURAL EMPLOYMENT 1940-45

(in thousands)

	July 1940	July 1945	Per Cent Change
Total employment	48,010	54,000	+12.5
Agricultural	10,660	9,670	−9.3
Non-agricultural	37,350	44,330	+18.7

All areas of the country experienced a decrease in hired labor during the war except the Pacific States. Regional differences were partly attributable to changes in production needs.

Family labor still supplies about three-quarters of farm employment, and the most pronounced drift away from the farms is in non-family labor. On the other hand, it is supposed that larger farms fared better with respect to labor supply, owing, of course, to relatively better wages and working conditions.

Farmers drew on women as a source of labor to an unusual extent, and the increase in employment of women from July 1940 to July 1944 was 72 per cent, compared to 63.1 per cent in other pursuits. The employment of males, on the other hand, declined 20.1 per cent for farms and slightly increased in non-farm occupations. Despite the deferment policy, the armed services, as well as job opportunities in business and industry, made severe inroads on the supply of male farm labor. Farm operators resorted to emergency sources of labor during the war (although the main source was still local) and soldiers, vacationists, students, and foreign workers—Mexicans, Jamaicans, Bahamians, and Newfoundlanders — were employed.

Despite the highly seasonal labor shortages experienced, farm operators were also drawn away from their own farms by wartime job opportunities. Continuing a long-time trend, about one-third of them were working on other farms in the peak war year, 1943, but the Department of Labor reports that they also contributed about 1,000,000 man-years (equivalent to 1,000,000 employed for one year) of non-farm work in the same year.

Pressure for agricultural products in the continental United States continued throughout 1945 and was little affected by the cessation of hostilities, which occurred near the end of the season. Wartime employment patterns were continued throughout the main agricultural season, and the emergency labor sources mentioned above were tapped.

PUBLIC EMPLOYMENT

The war caused large increases in Federal employment. At the beginning of 1945, a total of 3,401,791 was employed, of which 3,358,804 were in the executive branch, 6,160 in the legislative, 2,638 in the judicial, and 34,189 in government corporations whose payrolls are met out of their own operating revenues, according to reports by the U. S. Department of Labor. War agencies accounted for 2,513,250 of the employees in the executive branch. When Japan surrendered, a total of 3,800,000 were employed, of whom almost 900.000, mostly laborers, were overseas. Employment had thus quadrupled since the pre-war period. It is generally recognized that, despite sharp employment cuts in both regular departments and temporary agencies when war functions disappear, government employment will continue its long-term upward trend, owing both to increases reflecting general economic expansion (as in the Post Office Department) and adoption of new functions (as in the Federal Security Agency). Ranked by numbers employed as the war ended, the leading agencies were: War, Navy, Post Office, Treasury, Agriculture, Veterans Administration, and Commerce.

Employment levels for August of recent years are: 1939, 982,146; 1941, 1,496,669; 1943, 3,330,416; 1944, 3,388,274; 1945, 3,827,472.

Before the war (1939) state and local governments employed over three-fourths of all public employees. Local governments alone accounted for three-fifths of the employment. By 1944 and 1945, Federal employment was contributing half of the total public employment.

UNEMPLOYMENT

Substantial unemployment did not appear in 1945 until the latter part of August. The end of the war in Europe caused severe cutbacks in certain types of munitions production, with accompanying layoffs, but unemployment because of cutbacks had begun over a year earlier, and although there was a rise in May, June and July, it was not dramatic in trend. Interesting light is thrown on the employment situation prior to V-J Day by labor turnover data. By the beginning of 1945, the rate of voluntary quitting had begun to decline. Reports from workers indicated that there was a general tendency to "hold on the job," since the end of the war was in sight. The total separation rate, however, increased in the summer of 1945, because of scattered but substantial layoffs in war plants, and the accession rate, which in former months had almost invariably counterbalanced statistically the separations from employment, began to decline.

The U. S. Bureau of the Census estimates of unemployed (those able to work and actively looking for a new job) took a substantial upward turn beginning in June. In July, 950,000 were reported as unemployed and looking for work. By October, the estimate was 1,500,000 and, by December, was almost 2,000,000.

Unemployment compensation data cover more different types of unemployment than the Census estimates. The latter are of interest as an attempt to measure the kind of involuntary unemployment that is not "temporary" (*i.e.*, does not involve a layoff of less than 30 days). The unemployment compensation data include temporary unemployment and are somewhat less subjective as to definition of "involuntary" than the Census. On the other hand, unemployment compensation data do not cover all industries or all sizes of firms. Claims for unemployment benefits turned sharply upward in the summer of 1945, and, more significantly, the numbers remaining unemployed (as evidenced by payment of benefits after the waiting period) increased very substantially, and continuously through V-J Day when, of course, new claims again appeared in large volume. Claims filed after layoff (new claims) were 114,285 in October 1944 and 917,519 a year later. Continued claims filed after waiting period (denoting continued unemployment) amounted to only 303,756 in October 1944 and to about 5,500,000 in October 1945.

The incidence of unemployment was uneven in different regions of the country. Social Security Board data are available showing the ratio of claims filed to average monthly employment in the 12 months ended March 1945. As of the week ended Nov. 10, there were only two states, Michigan and Oklahoma, in which claims filed were over 9 per cent of monthly average employment in the preceding year. California, Connecticut, Alabama, and most of the midwest states had unemployment ratios of between 6 and 9 per cent and all others, including New York, Pennsylvania, Ohio, Washington, and Oregon, had ratios of less than 6 per hundred employed. The national average ratio was 5.7 per cent, a decline from a month earlier. The decline was in part owing to job opportunities in peacetime industries that were discovered by the claimants and in part to administrative policy in various states, which was in the direction of disqualifying for benefits workers who declined jobs in their pre-war occupations.

CHILD LABOR

By Ruth Mallay
Special Assistant in Research and Publicity,
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WAR CHILD LABOR FORCE

Children of 14 to 17 years old were used vigorously during the war. Some 3,000,000 boys and girls were part of our war labor force, constituting about one-third of the total number of boys and girls of this age. During the summers of 1943 and 1944, it is estimated that some 5,000,000 children from 14 to 17 years were gainfully employed. There are no official records of children under 14 at work, but there was ample evidence in many American communities that large numbers of them were employed.

A further analysis of the record shows that in April 1944 (the date of the last Census estimate) there were 2,000,000 boys and 1,000,000 girls at work. Of the number, 850,000 were 14 and 15 years old, with boys three times as numerous as girls in this age group. This is four times the number of children, 14 and 15 years old, employed in 1940 when the Census figure was 208,347. The 16 and 17 year old workers tripled between 1940 and 1944 (662,967 to 1,950,000).

Nine-tenths of the 14 to 17 year olds were to be found in four main industry groups: agriculture, wholesale and retail trade, manufacturing, and domestic and personal service. Agriculture claimed the largest number of 14 and 15 year olds, manufacturing and trade the largest number of the 16 and 17 year olds.

High wages attracted many of the young workers into paid jobs in industry during the war years. Others were moved by patriotic appeals to help the war effort. Many 16 and 17 year olds, too young for military service, went to work to still their general restlessness during these years of upheaval.

CHILD LABOR IN AGRICULTURE

The working conditions of non-farm children employed on farms were, on the whole, unsatisfactory during the war years despite efforts to get voluntary agreements on age limits and conditions of employment as a substitute for non-existent state laws regulating the work of minors in agriculture. The recommended 14-year limit for boys and girls, working on a day-haul basis, living at home or in farm work camps and being driven to work in trucks each morning, was frequently ignored, and the usual characteristics of seasonal farm work continued to exist—long hours, low earnings, and poor living conditions in many of the farm work camps. Among the children of migratory farm workers, conditions remained at a substandard level for both living and working in most parts of the country. The only improvement brought about as a result of wartime measures was the day care centers established for the younger children, but these reached only a small proportion of the migrant children. Reasonable standards of living and working conditions for migrants were rarely to be found during the war except in the camps maintained for the migrants brought in from outside of the country under government contract, such as the Jamaicans and Bahamans.

SCHOOL ATTENDANCE OF CHILD WORKERS

It is not surprising to find that high school enrollments fell during the years 1940-44 when 14 to 17 year olds were being drawn into the labor force in large numbers. The decrease in these years was about 14 per cent. In the school year 1943-44, high school enrollments were 1,000,000 less than in 1940-41, a drop from 7,244,312 in 1940-41 to 6,216,119 in 1943-44. Some of the decrease was caused by entrance of 17 and 18 year olds into the armed forces, some by the decrease in the general population of this age group. The main reason, however, was the presence of the large number of 14 to 17 year olds in the labor force.

Half of the 3,000,000 young workers, 14 to 17 years of age, had left school to work full time; the other half (1,400,000 attended school and worked part time. Of these 1,400,000 part-time workers, 1,000,000 were boys.

With the end of the war, school leaving by this age group has apparently stopped. The Children's Bureau reported in October 1945 that "although nationwide tabulations of current school enrollment and youth employment are not yet available, reports from several communities in many sections of the country indicate that the downward trend in high school attendance has been stopped, and that the youth of the United States have caught on to the idea that a high school diploma is worth more than temporary money." The vigorously conducted "National Back-to-School Drive," initiated during the summer of 1944 and carried on for the February term of 1945 and during the summer of 1945, helped to bring the young workers back to school. The Drive, sponsored by the Children's Bureau and the Office of Education, won the support of local communities all over the country. Carried on at the neighborhood level, with parents, teachers, employers, labor leaders, social workers, and other community-minded people back of it, it proved successful. The newspapers and magazines, radio, and motion pictures cooperated in the Drive to help youngsters and their parents realize the need for better education in the years to come.

VIOLATIONS AND ACCIDENTS

The war years saw many violations of Federal and state child labor laws, and an increased number of industrial accidents. Figures tell the story, and crippled children attest the fact. For the first six months of 1944, the North Carolina Labor Department reported the number of child labor law violations (7,576) as 22 times greater than the number found in the first half of 1940 (340). New York State reported five times as many violations for six months, May through October 1944 (11,809), as occurred in the whole year, 1940 (2,452). As for violations of the Federal standards, the Children's Bureau reports that, in its administration of the Federal Fair Labor Standards Act, it found an increase of 100 per cent in the number of violations in the three months, July, August and September, 1944, as compared with the same three months in 1943 (2,327 young workers in 824 establishments in 1944 as compared with 1,064 in 406 establishments in 1943). For the whole war period, the Children's Bureau reports that "more than seven times as many children were found to be illegally employed under the child labor provisions of the Federal Fair Labor Standards Act in 1945 as in the year 1941. These violations occurred in more than six times as many establishments."

Under such conditions it is not surprising to find an increase, during the war years, in the number of industrial accidents among children. Striking increases of 183 per cent and 100 per cent in the rate of industrial accidents to all young workers from 1942 to 1943 were reported by Michigan and Illinois, respectively. In New York City, during the first half of 1944, there were four times as many cases (326) where extra compensation was awarded to minors while illegally employed as compared with the first half of 1943 when there were 90 such cases.

From farm communities come records of children injured in running farm machines, climbing fruit trees, from sun exposure, and in truck accidents. Records from industrial centers report children maimed by machines, killed in falls down elevator shafts, hurt in transportation.

POST-WAR PROBLEMS OF CHILD LABOR

The end of hostilities brought old and new problems of child labor to solve. There are the old problems of state laws with too low standards and of violations of existing laws. There is the added problem of some 2,000,000 boys and girls, 16 and 17 years old, who held wartime jobs and whose work experience can not be overlooked in the period of reconversion and of growing unemployment. "The Children's Bureau," said Katharine F. Lenroot, its Chief, in September 1945, "is urging that communities make every effort to get these young people back into the classrooms. But, at the same time, the Bureau wants the job rights of these young people fully protected, and employment opportunities kept open to the older ones among them."

COORDINATION OF EFFORTS

A lesson learned everywhere in the war period was the effectiveness of coordinated effort. Today, in planning ahead in the child labor field, child labor leaders are seeking the advice and concerted action of government officials, school administrators and teachers, employers, labor leaders, vocational directors, recreation workers, and community-minded citizens.

ENFORCING THE LAWS

"Child labor clinics" for employers were a new development of 1945. It was felt that part of the great increase in violations of existing state and Federal child labor laws was brought about by the lack of knowledge on the part of employers of the provisions of these laws. The Children's Bureau, in the late spring and early summer of 1945, sponsored conferences of employers, called "child labor clinics," to bring to their attention the conditions under which children could be legally employed. With the cooperation of state officials in the Departments of Labor and Education, the regional representatives of the Children's Bureau and the wage-hour inspectors of the U. S. Department of Labor, advised with local groups of employers. The clinics were usually sponsored by such community groups as the Chamber of Commerce, or by service clubs. In some cities, local trade unions sat in at the clinics; in others, separate meetings with labor representation were held. In two cities, representatives from social agencies attended.

The clinic session includes a talk presenting the facts about child labor and is followed by a question-and-answer period. Printed material from both Federal and state labor departments is made available.

The clinics have been well attended. In one such clinic, in New York City, representatives from several associations of employers in the apparel industry, totaling some 8,000 employers, heard how child labor laws applied specifically to their industry. This experiment may prove a fruitful one in helping to enforce existing laws.

RAISING CHILD LABOR STANDARDS—STATE LEGISLATION

Existing child labor laws have still to be improved. Some progress was made in 1945 in remedying inadequacies in state child labor laws, and in improving compulsory school attendance standards.

The Children's Bureau and the National Child Labor Committee have sought for some years to establish a 16-year minimum age "for employment in any manufacturing or mechanical establishment at any time and in any gainful occupation during school hours." This standard has had the support of the American Federation of Labor, the Congress of Industrial Organizations, and the Association of State Labor Commissioners. Thirteen states already have such laws. Illinois in 1945 passed legislation to make a 16-year minimum age effective six months after peace has been officially proclaimed.

Most of the state legislatures met in the early months of 1945, and more than half of them considered major or minor bills to improve the working conditions of children but the gains were limited as only a few bills of major importance were enacted. Hawaii and seven states made some changes in their child labor laws: Illinois, Maine, and New York advanced their standards in important respects while Connecticut, Rhode Island, California, and Nebraska made some changes improving hour or work permit regulations. The only states in the country which had retained a 14-year limit for compulsory school attendance (Georgia, North Carolina) adopted a 16-year limit in 1945, and Oregon strengthened its educational requirement by limiting school leaving under 16 to those who have completed the 12th grade. In addition, New Jersey, Iowa, and Minnesota improved the status, under workmen's compensation acts, of children illegally employed. Michigan, while it did not enact an improved child labor act, established a commission to study child labor problems and to recommend legislation to improve conditions.

In New York, the important change which became effective Jan. 1, 1946, limits the part-time work of children while in school. Children under 16 may not work more than three hours on any school day, eight hours on a non-school day, 23 hours a week when school is in session; 16 year olds may not work more than four hours on a school day, eight on a non-school day, and 28 a week when school is in session.

Maine raised from 14 to 15 the age limit for manufacturing or mechanical establishments, poolrooms and bowling alleys at any time, and added laundries and bakeries to the list.

New Jersey, in 1945, established a Division of Migrant Labor in its Department of Labor. An appropriation of $100,000 was made available to provide better living conditions, health and welfare services, educational opportunities, and fair labor practices for migrant families. Working with the Division are the State Departments of Health, Agriculture, Education, State Police, Institutions and Agencies, and Economic Development.

COOPERATION OF LABOR UNIONS

Labor unions, both A.F.L. and C.I.O., are showing a far-sighted point of view on child labor problems. At their November 1944 convention, the C.I.O. called for: 1. "a broad government program for training and retraining young workers in new vocations, or at higher skills, to be put into operation during the reconversion period; 2. the participation of labor, industry and government in reestablishing and strengthening all Federal and state laws protecting the work standards governing young workers, and young women workers in particular; 3. a program of Federal and state aid to education, assuring an opportunity for young workers now in industry, who qualify for entry into college to do so; 4. the establishment of strict controls over work of minors, and the strict enforcement of existing laws and the enactment of new state legislation to secure the full abolition of child labor below 16 years of age; and 5. the establishment of a permanent National Youth Service Administration that shall serve as a coordinating agency in solution of reconversion and post-war problems of youth."

The Children's Bureau supports the call for government aid to enable students and young workers to continue their education. The Chief of the Bureau has asked for "some sort of system of student aid that would reach high school as well as vocational, professional and technical students."

WORK-SCHOOL RELATIONSHIPS

If young people are to be required to continue their schooling at least to 16 years of age, and encouraged to remain in high school until they finish, high school curricula must be made more meaningful for them. During the war, secondary schools experimented to a greater extent than previously with programs of work experience under school supervision by which their students combined paid employment with school work under plans organized and supervised by the school authorities. Where high standards of planning and supervision were maintained, this use of student manpower was constructive since students were enabled to participate in the war effort without leaving school and gained useful experience in industry at the same time. These part-time work programs under school supervision are now being studied by the National Child Labor Committee and an Advisory Committee representing industry, labor, education, and youth groups. If this kind of work experience is found to benefit the student at a particular period in his growth, it may be important to extend the development of it in secondary schools. A great need today is to find enough meaningful work experiences for young people which will provide them with the training they need and keep them from adding to the unemployment of older workers. A high school curriculum which includes such worthwhile work experiences, either volunteer or paid, will be more likely to keep its young people in school, giving them more training for occupational life and intelligent citizenship at the same time.

COUNSELING YOUTH

Wise counseling of youth is another important need today. If young people are to be encouraged to stay in school, or urged to leave the labor market and return to school in order to make way for returning veterans and generally to keep unemployment as low as possible during the reconversion period, they will need help in working out their problems. Those who left school will have to learn that in some cases their earnings during the war were far out of proportion to normal wages. They, and the students now in school, will need to have made clear to them that they will have to get more education and training if they are to succeed in post-war jobs. They will need wise counseling on jobs now available and the possibilities for job opportunities in the future. Even at a moment when the needs of veterans and the older workers are uppermost, one must not lose sight of the younger worker or the student who will shortly become a young worker.

EVERY CITIZEN'S RESPONSIBILITY

It is by the concerted effort of all citizens that we can best provide for our young people the kind of schooling they will need and the proper conditions under which they will work. These are some of the questions we must ask ourselves today: What will be the best combination of the traditional curriculum and the kind of training needed by the large majority of high school students who will go to work instead of to college? How can the curriculum be adjusted to include courses in education for citizenship and for leisure time? What provision can be made for able students to continue their education beyond high school? What kind of experience should students have in their summer vacation periods and should this be planned and supervised by the schools? Can children be given a creative experience in work without exposing them to the exploitation, deprivation, and injury that "child labor" has meant in the past and still means too often in the present?

SERVICES

The National Child Labor Committee (419 Fourth Avenue, New York 16, N. Y.) offers information on child labor conditions, including changes in the provisions and administration of child labor and compulsory attendance laws. It cooperates in drafting and procuring passage of legislation, conducts investigations on specific phases of child labor or general child labor conditions in a community, and publishes educational material, including a monthly publication, *The American Child.*

The Children's Bureau of the U. S. Department of Labor includes child labor news in its monthly magazine, *The Child,* and publishes many reports on child labor conditions. These materials are available on request. State Departments of Labor also publish reports on conditions in their own states.

The Child Welfare Information Service, with offices at 930 F. Street, N.W., Washington D.C., serves as a clearing house on Federal legislation and activities in the field of child and youth welfare. Organizations working in these fields may subscribe to the Service.

PUBLICATIONS

Most important of the publications prepared by the National Child Labor Committee in 1945 were:

"The Case for Sixteen Year Employment Laws."

"Child Labor as We Move from War to Peace" (annual Report of the National Child Labor Committee) by Gertrude Folks Zimand.

"Child Labor" (reprinted from *The Social Work Year Book 1945*) by Gertrude Folks Zimand

"The State Legislative Council—A Medium for Social Action" (reprinted from *The Compass*, March 1945) by James E. Sidel.

"Wartime Child Labor in Alabama" (*Alabama School Journal*, December 1944) by Louise D. Stetter

"Employment as a Factor in Juvenile Delinquency" (*Probation*, April 27, 1945) by Gertrude Folks Zimand

"Vocational Guidance of Minors" (*Encyclopedia of Child Guidance*, July 1945) by Gertrude Folks Zimand

"Child Labor and the Community" (*Pi Lambda Theta Journal*, May 1945) by Florence Taylor

"Uprooting Child Labor" (*Journal of Home Economics*, October 1945) by Florence Taylor

Publications of the Children's Bureau during the year include:

"Building the Future for Children and Youth. Next steps proposed by the National Commission on Children in Wartime."

"National Back-to-School Drive 1945-1946"

"State and Community Planning for Children and Youth. Proposals of the National Commission on Children in Wartime."

Articles in *The Child*:

- "Ways of Extending Educational Opportunities to Migrant Children," March 1945
- "Young Agricultural Workers in 1944," February 1945
- "Accidents Still Take Toll of Young Workers," August 1945
- "States Improve Child-Labor Standards," October 1945

"Child Labor and Youth Employment in This Nation's Third Year of War" (reprinted from *Social Service Review*, December 1944)

Other Publications:

"Trend of Child Labor, 1940-44" (reprinted from *Monthly Labor Review*, April 1945)

"Teen-Age Youth in the Wartime Labor Force," (*Monthly Labor Review*, January 1945)

PERIODICAL PUBLICATIONS

American Child, The
419 Fourth Ave., New York City.

American Federation of Labor Weekly News Service
901 Massachusetts Ave., N.W., Washington, D. C.

American Federationist, The
901 Massachusetts Ave., N.W., Washington, D. C.

A.L.C. News Letter
American Labor Conference on International Affairs, 9 E. 40th St., New York City.

Child, The
Children's Bureau, Department of Labor, Washington, D. C.

C.I.O. News (National Edition)
1106 Connecticut Ave., N.W., Washington, D. C.

Conference Board Management Record, The
247 Park Ave., New York City.

Economic Outlook (C.I.O.)
1106 Connecticut Ave., N.W., Washington, D. C.

Farm Labor
Bureau of Agricultural Economics, Department of Agriculture, Washington, D. C.
Federal Employee, The (N.F.F.E.)
10 Independence Ave., S.W., Washington, D. C.
I.L.O. News Service
International Labour Office, Montreal, Canada.
International Labour Review
International Labour Office, Montreal, Canada.
Labor Information Bulletin
Department of Labor, Washington, D. C.
Labor Relations Reporter
2201 M Street, N.W., Washington, D. C.
Labor Review
126 Sparks St., Ottawa, Can.
Labor's Monthly Survey (A.F.L.)
9th and Massachusetts Ave., N.W., Washington, D. C.
Social Security Bulletin
Social Security Board, Federal Security Agency, Washington, D. C.
Survey Graphic, The
112 E. 19th Street, New York City.
United Mine Workers Journal
900 Fifteenth St., N.W., Washington, D. C.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Federation of Labor, American Federation of Labor Bldg., 901 Massachusetts Ave., N.W., Washington, D. C.

American Labor Conference on International Affairs, 9 E. 46th St., New York City.

Congress of Industrial Organizations, 718 Jackson Pl., N.W., Washington, D. C.

International Labor Office, 3480 University Street, Montreal, Canada.

Labor Research Association, 80 E. Eleventh Street, New York City.

League for Industrial Democracy, 112 E. 19th Street, New York City.

National Child Labor Committee, 419 Fourth Ave., New York City.

National Federation of Federal Employees, 10 Independence Ave., S.W., Washington, D. C.

Railway Labor Executives Association, 10 Independence Ave., S.W., Washington, D. C.

United Mine Workers of America, United Mine workers Bldg., 15th & I St., N.W., Washington, D. C.

DIVISION XVII

RELIGION AND RELIGIOUS ORGANIZATIONS

INTERDENOMINATIONAL ACTIVITIES

By Preston King Sheldon
Editor and Writer

COOPERATION OF RELIGIOUS GROUPS

As the military forces of the United Nations settled down to the task of occupying conquered countries in 1945, having overcome for the time being, aggressive forces which were blocking progress toward world religious and political freedom, there arose in religious circles charges of bad faith and practices. These, however, failed to stir up any great degree of controversy and scarcely at all of distrust. The trend was away from bitterness and definitely toward mutual efforts in solving social and economic problems while remaining free to differ on matters of ecclesiastical policy.

The traditional aloofness among Roman Catholics and Protestants in matters of faith and formal symbols, coupled with equally historic differences over the relative position of Church and State, brought forth from St. Louis, Mo., in October, at a celebration of the 428th anniversary of the Protestant Reformation, a pronouncement by Bishop G. Bromley Oxnam, of the New York Methodist Area, president of the Federal Council of the Churches of Christ in America, emphasizing a tie-up between Roman Catholics and fascism. His charges, however, produced but slight repercussions from Roman Catholics. Replies indicated that the problem of the Roman Catholic and Protestant rift in dogmatic presentations of theology and worship could not be solved, and therefore might better be confined to "pacific controversy," while on a social plane there might be harmonious cooperation. This was suggested by John Courtney Murray, of the faculty of Woodstock College, Woodstock, Md., associate editor of *America*, a Jesuit publication. He discussed the issues at considerable length in an article published by the press service of the National Catholic Welfare Conference and in a tone equally frank and at the same time friendly to Protestants.

Bishop Oxnam had declared in St. Louis that serious tension was developing among Roman Catholics and Protestants in the United States, and that they must discover and remove the causes. Continuing, he said:

"The Holy Catholic Church, that is, the Church universal, is composed of three great branches, the Eastern Orthodox Churches, the Protestant communions and the Roman Catholic Church. I am convinced that the laity, and most of the clergy, of these great branches of the Holy Catholic Church are weary of religious discussion and practice that divide Christians." He said he knew "Roman Catholic statesmen, jurists, industrialists, labor leaders, teachers, scientists and priests" who were eager "to join hands with their Protestant brothers to establish a society in which the sacredness of every personality is recognized."

Calling for "a new unifying concept" for the world at large, Bishop Oxnam declared: "Understanding awaits plain speech. Such speech must be respectful, friendly, and reveal Christian love, but it must be frank and deal with real issues." Then he plunged into what he had to say:

"Protestants are gravely concerned over what they believe to be an attempt upon the part of the Roman Catholic Church to exercise political domination here, similar to the control exercised in many nations. Protestants will fight to preserve religious liberty, not only for Protestants, but for Roman Catholics and Jews, and other faiths. . . .

"Protestants have been subjected to serious misrepresentation in the Roman Catholic press. When Protestants have protested against intolerance upon the part of the Roman Catholic Church, their protests have been called intolerance. It is not intolerance to protest against Roman Catholic activities that seek through boycott to threaten newspapers and therefore to control them in Roman Catholic interest. This is to endanger a free press and to destroy civil liberty. It is not intolerance to protest against actions of certain Roman Catholic leaders to deny Protestant ministers access to the radio by threatening station owners with the loss of consumer support of products advertised. It is not intolerance to insist upon the separation of Church and State, and therefore, to object to the use of public funds for private and sectarian education. It is not intolerance to refuse to accept dictates that would deny Protestant churches the right to engage in missionary work in other lands, at the very moment the Roman Catholic Church affirms its right to carry on missionary work in all lands. It is not intolerance to protest against Roman Catholic support for the fascist regime of Franco Spain, when our sons die to destroy fascism everywhere and to preserve democracy for mankind."

The bishop condemned clericalism and included re-emphasis upon the Protestant position (as outlined in a resolution adopted at the biennial convention of the Federal Council of the Churches of Christ in America, in November, 1944, in Pittsburgh), also in opposing establishment of diplomatic relations with the Vatican. (See THE AMERICAN YEAR BOOK, 1945 printing, p. 670.)

Bishop Oxnam in June, speaking in New York City, had also declared at a rally under auspices of the Federal Council of Churches and the Protestant Council of the City of New York that in countries where Catholicism was predominant there had been discriminations against Protestants, particularly in Italy, where the situation was looked upon by him as serious.

Bishop Oxnam had just returned from several weeks abroad, visiting battle areas, his itinerary including Italy and the Mediterranean Area. He took two trips to Europe in 1945 on behalf of worldwide Protestant unity. He was accompanied on both occasions by Bishop Henry Knox Sherrill of the Boston Protestant Episcopal Diocese. They attended the enthronement in April of the Archbishop of Canterbury, Geoffrey Francis Fisher, successor to Dr. Temple, who had died Oct. 26, 1944, the occasion being the second on which invitations to an Anglican enthronement had included American church leaders. In Italy Bishop Oxnam met in Naples the militant Lutheran pastor, Martin Niemoeller, finding him in good health and spirits. Niemoeller recommended that re-educating of Germans start with the younger generations. He was confident that Christians, because of "a unifying force" at work among them, had the best chance to succeed in preparing Germany's rising generations to take their place in the family of nations.

The second trip was started in November when Bishops Oxnam and Sherrill went to Germany and initiated a survey of the needs of German Protestants. They were joined by Franklin Clark Fry, president of the United Lutheran Church in America, who was already in Europe. Thus determined cooperation was begun among Protestants in both hemispheres which had been prepared for during the better part of a decade. Such activities were being taken along with others as indications of new hope and progress.

The bishops returned in December with a report signed by the three as a delegation of the Federal Council of the Churches of Christ in America sent to re-establish relations with German Protestants. They travelled through Germany, visiting Frankfurt, Stuttgart, Munich, Nuremberg, Hof, and Berlin, conferring with church leaders, including Pastor Martin Niemoeller, who had been elected vice-chairman of the Council of the Evangelical Church in Germany, and Bishop Theophil Wurm of Wurttemberg, chairman of the council.

The Protestants of Germany were reported as comprising 60 per cent of the population and having "a vigorous upsurge of life and activity since the end of the war." This was viewed as "profoundly gratifying in view of the vicious persecution" suffered under the Nazis. The Evangelical Church was reported to be supported by "the overwhelming majority" of German Protestants. They had already begun ridding themselves of Nazis and started to solve the problem of relationship of churches to the State.

A particularly urgent problem, however, was faced by the churchmen—that of supplying the Germans with clothing and bedding to keep them warm through the winter. The American Military Government had taken over the distribution of food, undertaking to supply the minimum requirements of 3,000,000 returning evacuees in the American zone of occupation in addition to the remaining population in the area. Bishop Oxnam, explaining the food situation, stated in an interview that it was felt that for the time being food distribution could be better handled by the American military authorities in the emergency than by private relief agencies, including the churches, from America. He issued an appeal for the churches and relief agencies to confine their immediate relief work to clothing and bedding and to petition the Federal Government for permission to send these supplies to Germany to be distributed by churches there.

DEDICATION OF BOWNE HOUSE AT FLUSHING

A particularly bright aspect of religion's place was found arising from a celebration of the tercentenary of the founding of Flushing, Queens County, N. Y., as Vlissingen, under a charter granted by the Dutch West India Company in 1645. Leaders of all faiths took part on Oct. 10, 1945 in dedicating the home of John Bowne in Flushing, as a national shrine to religious liberty. This historic structure, built in 1661, as a residence, became a meeting place for Quakers. It stands opposite the site where George Fox, early Quaker preacher, preached doctrines considered unorthodox under oak trees in the open air. Mayor Fiorello H. LaGuardia of New York City gave one of his weekly radio broadcasts over the city's station from the home the Sunday before the dedication. He told of Bowne's defiance of Governor Peter Stuyvesant, who forbade the assembly of Quakers and of Bowne's banishment to Holland, his exoneration and return with instructions from the Dutch government to Stuyvesant to leave Bowne and his followers unmolested, establishing thus the right to freedom of religious worship.

AWARD TO RED CROSS HEAD

Another contribution to religious understanding in the United States was the award in November by the National Conference of Christians and Jews of a scroll to Basil O'Connor, chairman of the American Red Cross, as its annual citation on behalf of the conference's program of good will among Roman Catholics, Protestants, and Jews.

POST-WAR CHURCH RELIEF

Consultations among Protestant churchmen, begun in 1933 at Bishopthorp, York, England, instituted by the late Dr. William Temple, at that time Archbishop of York, later of Canterbury, were speeded as the

Second World War drew to a close, having been a constant factor in building up Protestant forces into a World Council of Churches. Postwar plans for such a council, held to be in process of formation even as its organizers proceeded with relief projects for war sufferers, were well advanced as the world began to turn its attention to problems of reconstruction and rehabilitation with a total of ninety Protestant organizations in thirty-one countries pledged. The sudden termination of the war in Europe in May, 1945, found Protestant leaders in the United States prepared to describe the needs for relief work and to launch drives to raise the necessary funds as well as to collaborate in a world unity program.

Dr. Robbins Wolcott Barstow of Hartford, Conn., had been named in January, 1945, as director of a new Commission for World Council Service established in 1944 by the American Committee for the World Council of Churches. (See THE AMERICAN YEAR BOOK, 1945 printing, p. 672.) The commission was set up as the American office of the Department of Reconstruction and Inter-Church Aid in Geneva, of the World Council of Churches and as such was closely related to the Church Committee on Overseas Relief and Reconstruction. Its projects were to include practical expression of Christian unity and world-wide cooperation among Christians. Friends of the World Council received in December a gift of $1,000,000 from John D. Rockefeller, suggested for Christian rehabilitation, reconstruction, and education in Europe. One-half was to finance the commission's overall program and the balance for education and publications and the establishing of a Christian laymen's training center under World Council auspices.

The Friends of the World Council of Churches held their annual meeting in December at the Hotel George Washington, New York City, and approved an urgent request of the Commission for World Council Service for immediate approval of requests of the United Nations Relief and Rehabilitation Administration "for such amounts as are deemed necessary to fulfill its international pledges of aid, and provide timely relief to those in direst need in both Europe and Asia." The request was in the form of a petition to the President of the United States, Secretary of State, Secretary of War, Secretary of the Treasury, and the Congress, calling for the lifting of bans on mail and parcels and the providing of facilities and safeguards "whereby gifts of food and clothing may be sent to individual sufferers in as much of western, central, and eastern Europe and Asia as can be reached." Also it urged: "That all necessary permits, facilities and safeguards be granted for bulk shipments of relief goods into central Europe and Asia by the Commission and other recognized relief agencies."

Immediately following this move, five Protestant groups signed an appeal for Federal Government permission to send church supplies and funds at once to ex-enemy countries. Taking sharp issue with the State Department policy, which prohibited entry of all private relief to Germany, they called for its reversal. They also called attention to the appeal by notifying constituent churches and implied their intent to ask the Government to open the way to similar relief for Japan. The groups represented in the appeal were: Federal Council of Churches, Dr. Roswell P. Barnes; Foreign Missions Conference of North America, Dr. Wynn C. Fairfield; Commission for World Council Service, Dr. Robbins W. Barstow; Church Committee for Relief in Asia, Dr. Fred A. Moore; and Church Committee on Overseas Relief and Reconstruction, Dr. Leslie B. Moss.

With the end of the war in Europe, the Church Committee on Overseas Relief and Reconstruction announced a goal of $6,440,000 for a year. Other needs were announced for auxiliary agencies in addition to goals set by major cooperating Protestant denominations for a four-year period, totaling $100,000,000, of which half was designated for overseas uses. The committee's staff was augmented in

September. By December the committee had announced receipt of a request from the Chinese National Relief and Rehabilitation Administration for goods and funds. Christian workers were also sought, including doctors and nurses. Church Christmas packages began to move. Dr. Leslie B. Moss, executive director of the committee on overseas relief and reconstruction suggested to the churches the setting aside of Thanksgiving offerings at union services to be used for post-war relief. Five major international agencies had united in a European relief appeal by October. These were the World Council of Churches, International Committee of the Red Cross; World Jewish Congress, Save the Children International Union, and Catholic Charities, all pledged "to work together in meeting needs without regard to nationality, race or creed."

Dr. Samuel McCrea Cavert, general secretary of the Federal Council of the Churches of Christ in America, who left in September to work six months with the general staff of the World Council of Churches in Geneva, reported in October that a special division of the council for material aid, which had been set up, was in no way taking over responsibility from the United Nations Relief and Rehabilitation Administration or from military governments. Representatives of the council had decided that the churches had to augment governmental aid programs by special efforts. There was feeling in many circles that government programs were not functioning completely. The Federal Council of the Churches of Christ in America also continued its support of a United Nations Relief and Rehabilitation Administration request for $1,350,000,000 from Federal funds and of the National War Fund.

Collaborators in the program of the World Council of Churches for reconstruction in Europe reached Geneva in July. Dr. Cavert had visited Geneva in 1942 and plans were laid at that time for post-war aid to churches in devastated areas. Dr. J. Hutchinson Cockburn, former moderator of the Scottish Church, became director of relief and reconstruction. Stewart Herman, a Lutheran and former pastor of the American Church in Berlin, was added to the central staff of the relief department as American member. Robert W. Anthony, on behalf of the Church Committee on Overseas Relief and Reconstruction and the Commission on World Council Service, had already visited Italy (leaving the United States in early February and returning in late May) and cleared channels there for work among Protestants.

Protestant leaders from the United States, representing the American branch of the proposed World Council of Churches, reached Germany in late summer. They were welcomed by leaders of the Council of the Evangelical Church in October in Stuttgart, who expressed a feeling of guilt for the rise of the Nazis to power. They committed themselves to a new start with immediate collaboration by joining the World Council.

NEW WORLD ORDER GOAL

While activities of relief agencies of the churches were necessarily intensified in the months immediately following the cessation of hostilities, the goal of permanent world peace and a new economic order was not forgotten.

The American Committee of the World Council of Churches and the International Council of Religious Education had by December worked out a plan whereby the former would set up a midwestern office in Chicago to promote interest in ecumenical Christianity as symbolized by the objectives and program it had been working on, and the latter would agree to promote knowledge of that program through denominational boards of Christian Education in the United States and Canada, which were its constituents. There were 42 of these, together with 30 state councils of churches cooperating in the work of religious education in Sunday Schools, vacation church schools, and week-day religious education. Paul G. Macy was named director of the office of the American Committee of the World Council of Churches and ecumenical secretary of the International Council of Religious Education. The intent was to train religious educators with a world Christian attitude and lead churches to recognize their responsibilities to the world program of Protestantism. A staff conference of the international council was held in Chicago in December to formulate plans and organize for conducting projects which its staff had outlined in 1942 and which had been revised by its commission on education, but which had been held in abeyance until adequate effort could be given. The program's delay was attributed to pressure by wartime duties on the staff and personnel concerned.

The World Council of Christian Education, governing body of the World's Sunday School Association, announced in December a world program to strengthen Christian leadership in 55 countries in which had been organized 52 national Sunday School associations or councils of religious education, including the International Council of Religious Education. Dr. Forrest L. Knapp, general secretary of the Association, reported 38,000,000 Protestant teachers and students enrolled in Sunday schools in these countries. Collaboration was also reported with the Eastern Orthodox Church in Palestine, Syria, Egypt, and Greece.

The world post-war program through the Association's facilities included a start on restoring 400,000 Christian teachers and youth leaders in war-torn countries and the expanding of training work to procure more of them. This program had in the United States a committee of government, educational, business, and industrial leaders, and included several former Federal officials, among them Cordell Hull, Secretary of State under Franklin D. Roosevelt.

The heads of seven national governments, including President Truman, endorsed an appeal for the fulfillment of the Christian church's teaching mission, the appeal having been prepared especially for publication in connection with the Association's launching of a drive for funds to carry out the world program. The other signers of the endorsement were King George VI, President Chiang Kai-shek, King Christian X of Denmark, King Gustav V of Sweden, King Haakon VII of Norway, and Queen Wilhelmina of Holland.

The statement in part declared that the structure for world organization for peace "must rest upon the solid foundations of strong moral and spiritual character in the life of all peoples everywhere. The world must look to the Church to lay those foundations, especially in the lives of children and youth."

Dr. Knapp, in his semi-annual report, told of a request from Isamu Chiba, secretary of the Sunday School Board of the Church of Christ in Japan, for information on Sunday School activities throughout the world, particularly in the United States, "to supply us with anything which will show the Japanese children that America is a very good friend and neighbor to them, who have been taught in these years by the militarists that the Americans were demonic enemies to be hated to the end." The Japanese secretary reported that the Sunday School Board of the Church of Christ in Japan did not cease its work all through the war. It continued to publish lesson materials and hold teachers' meetings. The Board shortly after the cessation of hostilities announced it was planning lessons for the "new, free and democratic age."

Three national inter-church agencies in the Western Hemisphere joined in October in calling for dropping of materialistic concepts of self-interest and power and for a spiritual reformation. The agencies were the Federal Council of the Churches, the Foreign Missions Conference of North America, and the American Committee for the World Council of Churches. The call was sent to heads of church bodies in 50 countries, appealing for a total mobilization of

Christian forces all over the world to support the United Nations Organization and to give relief to war sufferers.

"We see in the San Francisco charter (the United Nations Charter) the promise of a true community of nations," the message stated. "We are gratified that the United States has already ratified the Charter. We look forward to the day when the United Nations Organization will displace the anarchy of competing and unrestrained sovereign states. We believe that an enduring peace requires that all nations willing to accept and fulfill the obligations of the Charter should thereupon be made members of the United Nations Organization. We believe the treatment of Germany and Japan should aim to bring these nations at an early date into normal relations with the world community. Just as the war was a global war, so the peace, if it is to endure, must be a global peace.

"We are determined to work for the continued expansion of the curative and creative functions of the United Nations Organization, for the fulfillment of the purposes assigned to such agencies as the International Court of Justice, the Economic and Social Council, the proposed Commission for the Promotion of Human Rights, and the Trusteeship Council. We desire to be associated with Christians everywhere in the task of making the United Nations Organization an effective instrument for the removal of the political, economic and social causes of war, for the peaceful settlement of disputes and the achieving of justice in international relationships."

As its contribution, the Federal Council of Churches was represented at the United Nations Conference in San Francisco, in the spring by Dr. Walter W. Van Kirk, secretary of the Council's Commission on a Just and Durable Peace. He was assisted by Bishop James C. Baker, Methodist, of Los Angeles, chairman of the International Missionary Council, and by Dr. O. Frederick Nolde of Philadelphia, secretary of the Joint Committee on Religious Liberty of the Federal Council and the Foreign Missions Conference of North America.

John Foster Dulles, chairman of the Council's Commission on a Just and Durable Peace, was relieved of his duties temporarily during 1945, to enable him to give full time as general adviser to the American delegation at San Francisco. The Commission had rallied a conference of 481 delegates in January, at a scheduled meeting in Cleveland, where the Dumbarton Oaks Proposals were hailed "as an important step in the direction of world cooperation," but nine amendments were proposed. Approval of the proposals themselves was a first step toward achievement of a postwar world order consonant with the guiding principles and Six Pillars of Peace promulgated in 1943 by the commission under a former status (see THE AMERICAN YEAR BOOK, 1944, p. 635) was embodied in a 6,000-word message to the churches in January at the end of the national study conference on the churches and a just and durable peace. This came as a sequel to the conference held in Delaware, Ohio, in 1942 (see THE AMERICAN YEAR BOOK, 1943, p. 632) at which guiding principles were drawn up.

The message embraced a declaration of Christian principles, an appraisal of the international situation, and a program of action to insure winning the peace. It was sent for study and action to all the Protestant communions, allied groups and city and state councils of churches represented. The Cleveland conference attracted 100 more than the one in Delaware, two years previously, 34 communions, 18 allied bodies, and 70 city and state councils sending delegates. Four principles of conduct were suggested in addition to the nine suggested amendments to the Dumbarton Oaks proposals and four provisions in accord with the Six Pillars of Peace, using the guiding principles adopted at Delaware also as a yardstick.

In brief, the amendments covered: reaffirmation of the purposes of the Atlantic Charter; development and codification of international law to achieve the progressive subordination of force to law; denying any nation the right to vote when its case was being judged in accordance with predetermined international law; liberalizing the provision for amendments which required concurrence by all permanent members of the Security Council; creating a special agency on colonial and dependent areas to establish their progress toward autonomy as an international responsibility; establishing a special Commission on Human Rights and Fundamental Freedoms; specifically providing for eventual universal membership; making more specific provision for promptly initiating limitation and reduction of national armaments; and creating provisions designed more clearly to protect and defend smaller nations from possible subjection to the arbitrary power of the great nations.

The four principles of conduct were: that government adopt and publicly proclaim its long range goals and skilfully battle for its ideals and under conditions that no particular setback need be accepted as definitive. When the people had demanded these from their government, the conference stated, they should judge it not merely by immediate results but by its long-term objectives and by whether it works competently to achieve them. These recommendations on the Dumbarton Oaks proposals were sent to the President of the United States, Secretary of State, and members of Congress.

Discussing the peace settlement in Europe and Asia, the conference in Cleveland urged a peace that would remove "the power and will to wage war" from both but emphasized that a vindictive course would be to the disadvantage of the world in the struggle for world organization. Unilateral determination of boundaries in Europe was opposed as well as the forced partitioning of Germany. The fullest measure of autonomy for smaller and weaker nations consistent with European unity and world organization was asked. As to peace in Asia, the conference stated that it was of urgent importance that China be heard in international affairs and that she be provided with unrestrained opportunity for internal development. It also declared that Japan's basic economic problems required that access to trade and materials, pledged by the Atlantic Charter, must be extended to her and added that the aim of the United Nations should be to bring Japan into normal relations with the world community. Encouragement of constructive forces in Germany and Japan was urged.

THE WORLD ECONOMIC PROBLEM

Considerable attention was given to the economic problem, domestic and international, and its relationship to just and durable peace. The conference said a new challenge was offered to the people of America to establish, along with political democracy, an opportunity through productive employment to earn an income sufficient for basic needs and an assurance to everyone, regardless of race, of equal and unsegregated opportunity to worship, protection in time of unemployment, illness or need, and full civil and political rights. Need for experimentation with various types of ownership and control was recognized—private, cooperative and public. It said changes in the American economic system in the direction of more social planning and control might be necessary, with more regulation of the rights of private property and freedom of enterprise.

"A challenging effort in the United States in the solution of our domestic and economic problem," the conference concluded, "will be followed by favorable repercussions in the economic and spiritual world, thus contributing to the establishment of a just and durable peace." To prevent recurrent depressions, the goal of full employment of labor and of economic resources on a world scale must be continuously pursued, it continued, and poverty must be attacked by helping men everywhere to raise their standards of living. A world point of view must be developed in which the United States must actively participate.

THE PROBLEM FOR PROTESTANTS

The Cleveland conference turned to the problems of Protestant communions and made it plain that denominationalism was not adequate. A more vital and visible federal unity was urged. Greater attention was urged to education in techniques to build a Christian world community and to teaching children conditions of world peace; to using all facilities of Protestant churches to secure American participation in international cooperation, church assistance in relief, and reconstruction in war-ravaged areas; active support of proposals to legalize a permanent Federal Fair Employment Practices Commission; repeal of the poll tax and other discriminatory laws; housing projects and other measures designed to advance the well-being and constitutional rights of Negroes and other underprivileged groups. Study conferences were suggested on industrial relations and rural economics and on race relations. The conference further concurred in resolutions of the Federal Council of Churches, and several other religious and educational bodies, urging deferring of Congressional action on peacetime military conscription until after the war.

AN INTERFAITH VIEW

Pronouncements on moral principles of a just world order also came out in a joint statement of Roman Catholics, Protestants, and Jews in April, agreeing on ten recommendations for the United Nations Charter which was about to be drafted in San Francisco. Stressing the need of a world security organization, the statement called for open membership; codification and impartial enforcement of international law; revision of treaties and other agreements when justified in the interest of world welfare; safeguarding of political and economic rights of small nations, assuring them adequate participation in shaping policies; limitation and control of armaments as a clear purpose; that no nation be permitted to veto judgment in any dispute under international law; an international bill of rights, with commissions to protect rights and liberties of individuals and those of racial, religious, and cultural groups, and a commission to administer mandated territories and promote social, political, and economic progress among non-self-governing peoples.

After the United Nations Conference had ended in San Francisco, the executive committee of the Federal Council of Churches, stated: "The Charter of the United Nations offers mankind an important means for the achievement of a just and durable peace." The committee felt that the proposed United Nations Organization could "help governments to join their moral and material resources in support of a system of world order and justice." To the people of the earth, it added, was left responsibility for its success.

A program of strategy was announced in November by the Commission on a Just and Durable Peace, headed once more by John Foster Dulles, who reported on the international situation at a meeting of the commission in Philadelphia to determine its part in supporting the successful operating of the world's new peace program. In a statement sent to the churches, the commission declared its intention to exert its strength to prevent war this time from perpetuating itself, by breaking the cycle. Re-emphasis was put upon the principle objectives, which by now had become repetitious in their insistence for action on them. Territorial changes were recommended only when conforming to the desires of the inhabitants; independence and self-government was urged for colonial peoples; and that limitations be put upon armaments, and upon reparations, so as not to lower living standards for peoples paying them.

INTERNATIONAL CONTROL FOR ATOMIC POWER

Meanwhile the Commission had on its hand the problem of nuclear energy and atomic bombs. International controls over all atomic power were recommended personally by Richard M. Fagley, secretary of the Commission, in a statement published in August, and by John Foster Dulles, speaking at a dinner meeting in November in connection with the installing at Riverside Church, New York City, of Dr. Henry Pitney Van Dusen as president of the Union Theological Seminary. The occasion was of more than usual significance in that 400 religious educators and clergymen of this and other countries, many of them heads of theological seminaries, were present. Among them was Dr. Adolphe Keller, former director of the Central Bureau for Interchurch Aid, Geneva, Switzerland, who flew here to represent the theological faculties of Basel, Lausanne, Geneva, Zurich, Bern, and Neuchatel and Bishop A. E. J. Rawlinson, of Derby, England. Dulles called for submitting control of atomic power to the General Assembly of the United Nations Organization, saying "the power we want is the power of world opinion." In September the Federal Council of Churches urged such a step as the first order of business for that body and called upon the Federal Government "to state now its intention to place the new discovery under a world-wide authority as soon as all states will submit to effective controls," and immediately to work for the creation of such controls. The Council's executive committee warned that the danger of atomic war is "too great and imminent to permit neglect of any means calculated to lessen or delay it." Technical and political obstacles standing in the way of international controls can be overcome, the Council declared, "if governments and peoples are determined to establish the sovereignty of mankind over destructive atomic power." Otherwise the struggle among competing states would tend to precipitate total war, because of mutual fears of aggression.

The Council also called attention to "the curative and creative work envisaged under the provisions of the Economic and Social Council," urging "our government to give leadership and loyal support to the economic and social work of the United Nations."

SOCIAL PROBLEMS

Social maladjustments arising from war conditions were stressed at home by the Federal Council, in continuance of its previous activities in that direction. It supported extending old age and survivors insurance to agricultural workers, domestic servants, employees of non-profit organizations, and the self-employed; a sound plan of public health and disability insurance; and the including of churches in a Federal social security plan offering protection to lay employees.

A second action was an appeal early in 1945 to church members to support all "sound and effective measures for a thorough housing program, urban and rural, including community planning for all groups and races, slum clearance and rehousing when necessary." It also urged churches to approve the general principle of assistance by Federal, state, and local governments, without passing judgment on any particular legislative proposals. Dr. Samuel McCrea Cavert testified in favor of legislation to establish a Federal Fair Employment Practices Commission with enforcement powers, at a hearing in March before members of the United States Senate Subcommittee on Education and Labor. He said there was "an awakening conscience in the Church on the question of justice for minority peoples in our national life."

In its annual message for Labor Day, the Federal Council urged cooperation among government agencies, the churches, employers and workers in rebuilding the post-war world and laid down nine tasks embracing factors making up the demands of society for social and industrial harmony. These objectives reemphasized the many points on economic, social and industrial relations repeatedly made in previous pronouncements.

UNITED COUNCIL OF CHURCH WOMEN

In preparation to lend its aid to the promoting of wide understanding of the United Nations Charter, the United Council of Church Women, through its executive committee, was recorded in May, 1945, as ready to distribute copies of the text through state councils of church women, aiming to have the text reach local councils. It issued a public statement and cooperated on a national scale with other groups "bearing constantly in mind the plans of the Commission on a Just and Durable Peace." It placed responsibility on church women to "develop attitudes necessary for getting the international machinery to work." On international unity the United Council of Church Women resolved "that the world must be physically restored before a stable peace can be achieved," and reaffirmed "willingness to share food, goods and money for such restoration." It also declared: "Further, realizing that peace is not secured until a spirit of trust, confidence and cooperation exists between the nations," the Council "urges that all possible means be used to build good will and unity." It said: "Especially must this be carried out among the United States, Great Britain, Russia, and China." The women urged "particular cultivation of understanding and friendly relations with the Soviet Union."

In furtherance of its spirit of sharing, the United Council of Church Women called for the United States to lead in seeing that material supplies were forthcoming for Europe, the war in that area having ended at the time the appeal was made. The women urged continued price control and rationing and "our government to fulfil promptly its obligations under the United Nations Relief and Rehabilitation Administration." They pledged increased support also for church relief agencies.

In June the women pronounced a protest against delays in Congress on appropriations for continuance of the Federal Fair Employment Practices Committee and urged its State Council presidents, in an emergency call for action to stimulate the sending of telegrams to President Truman, to United States Senators and members of the House of Representatives calling for favorable action on the proposal. In November the executive committee voted to oppose compulsory military training and censured the city of Washington, D. C., where it was meeting, for discriminating against Negroes.

The World Alliance for International Friendship through the Churches announced a program for 1946 which included sending deputations to Europe and South America and a strengthening of its educational campaign for durable world peace. It cooperated with the Church Peace Union and a number of other national organizations such as the American Association for United Nations, the Commission to Study the Organization of Peace, the Council for Democracy, the Council against Intolerance in America, and the Free World Association. Its *News Letter* throughout 1945 carried reports of reactions to current religious and political activities in the general movement to establish a United Nations Organization.

RESUMPTION OF MISSION WORK IN JAPAN

Resumption of relations between Protestant churches of the United States and Canada and Christians in Japan was initiated soon after the end of war in the Pacific as the result of action taken in September by the Japan Committee of the Foreign Missions Conference of North America. The way was opened for deliberations by 38 constituent mission boards on the part they might take in missionary work in Japan. As a beginning, 13 Protestant denominational foreign mission boards and agencies agreed to resume work in Japan in a united Christian program by pooling their personnel, resources, and administration. Ten others started a consultative status, the remaining boards standing by to keep in touch. The groups deciding to resume missionary work in Japan were the foreign mission boards of the Reformed Church in America, the United Church of Canada, and its Woman's Missionary Society, Methodist Church, Evangelical and Reformed Church, Congregational and Christian Church, Disciples of Christ, Presbyterian Church in the U. S. A., Evangelical Church, Methodist Women's Division of Christian Service, the subcommittee on Pacific Areas of the American Section of the Friends World Committee, the United Brethren in Christ, and the United Lutheran Church in America.

Protestant unity was found to be firm in Japan and a sincere desire for democracy was reported by a deputation of Protestant leaders who went there by air in October and returned in November. They were Dr. Walter W. Van Kirk, secretary of the Department of International Justice and Good Will of the Federal Council of Churches; Dr. Luman J. Shafer, chairman of the Japan Committee; Dr. Douglas Horton, chairman of the American Committee of the World Council of Churches, and Bishop James C. Baker, of Los Angeles, chairman of the International Missionary Council.

Lack of resentment toward American soldiers by the Japanese was reported, along with a feeling of resentment by them toward their military leaders by whom they felt themselves to have been misled in the war. Each of the deputation had a brief interview with Emperor Hirohito, at his invitation, and conferences were also held with cabinet members and with Toyohiko Kagawa, Japanese Christian leader. The Japanese emperor inquired of each about the work of American churches and the possible significance of Christianity in the reconstruction of Japan. Their audiences were widely reported in the Japanese press and were believed to have enhanced the prestige of the Christian movement in the mind of the Japanese public. Conferences with the Japanese Premier, the Minister of Education, Minister of Public Welfare, and the Japanese Foreign Minister also centered on the task of Christianity in rebuilding Japan. Kagawa was found to have undiminished faith in the future of the Christian enterprise.

The *Nippon Times,* in a two-column editorial on the visit of the American religious leaders, commented that the work of the deputation "is bound to mark a significant first milestone on the road to Japan's return to the international fellowship of peace-minded peoples."

Steps were taken by the Japan Committee immediately after their return to provide hundreds of thousands of Bibles, hymnals, and other items of Christian literature to Christian churches in Japan. The committee voted to ask the American Bible Society to arrange to send at the earliest possible moment 100,000 New Testaments in English, specifically requested by Japanese Christians. The Society also reported in December of receiving calls for Scriptures from Germany, China, and "hundreds of other spots on the globe." Various denominational groups were reported to have demonstrated their confidence in the Society's war emergency program by giving more than $1,000,000 since July, 1940, above the amount given for regular work of the Society. It was also preparing to distribute Scriptures in Russia "if and when such distribution" was allowed. In May the Society reported for 1944, the distribution of 12,403.541 Bibles, Testaments, gospels, etc., as the largest annual distribution in its history.

MOSLEM MISSIONS

The Foreign Missions Conference also reported that Dr. Gloria M. Wysner, executive secretary of the Committee on Work Among Moslems, had gone for a five-months survey of Protestant missionary work in Algeria, Tunisia, Egypt, Syria, Lebanon, Palestine, Iran, Iraq, and Turkey. Dr. Wysner, who had prepared late in 1944 for private circulation a statement on the "Dilemma in Palestine," issued by her committee, found it necessary to issue reprints in April, 1945. The statement emphasized a conflict between political Zionism and the struggle of Arabs for political freedom from outside interference in setting boundaries. It made a clear distinction between cultural Zionism and political Zionism.

PALESTINE PROBLEM

"Upon the interpretation of the phrase 'a National Home in Palestine' has hinged great misunderstanding," the statement said. "Arab fears have focused on this. For the political Zionist a national home means eventually Palestine as a 'national State' with the Jews in control of the country. The Arab looks upon this as a planned effort to deprive him of his inherent rights in Palestine and to make of him a minority people, and this without his consent. Cultural Zionists interpret a national home as a place where the Jew may develop his cultural interests and to which he may look as the center of his Jewish life. Cultural Zionism had been developing slowly in Palestine through the centuries preceding the First World War, encountering little difficulty from the Arabs. . . . A national home in Palestine would have the support of some Arabs, although perhaps not the majority, but all Arabs would oppose Palestine becoming a national Jewish state." Dr. Wysner detailed the many attempts at solving the Palestine problem and cited the Balfour Declaration of Nov. 2, 1917 as causing confusion and dismay among the Arabs. She charged that France and Great Britain had in a scheme of mandates "imposed upon the Arabs a settlement which violated the promises made to them." Efforts within the United States to aid refugee Jews in returning to Palestine as well as Jews to go back from here were likewise complicating the problem, she indicated.

In a pronouncement in October, the Foreign Missions Conference called on Christians to "initiate a more positive and vigorous program to eradicate anti-Semitic feeling" in the United States, sending the statement to world religious leaders. It declared the refugee problem to be immediate and said that the number of surviving Jews "who may prefer Palestine" for a permanent home was not clear. "Insistence by Jewish nationalists that Palestine is the only possible haven for Jewish refugees, in the face of the political impasse in that country, seems to us definitely to obstruct their rescue by all other means."

HOME MISSIONS PROJECTS

In keeping with the general trend to render aid to the needy as a result of war conditions throughout the world, the Home Missions Conference of North America announced in September the start of its work among needy groups of Americans at the outset of post-war reconversion. Leadership in religious activities was continued for former war workers in industrial areas where it had been conducted in the war period, but with the responsibility placed in the hands of a newly organized Industrial Committee, which took over the work of the Christian Commission for Camps and Defense Communities as soon as it disbanded. As early as the second week in September, millions of war plant workers were reported out of jobs and faced with new needs. Churches near government housing projects and trailer camps were urged to take steps at once to aid them. Many were remaining in industrial centers and becoming integrated permanently in new communities. Stanley U. North of the Congregational Christian Churches' Board of Home Missions was made chairman of the new committee.

A particularly distressing problem faced was that of relocating Japanese Americans remaining in eight relocation centers because of an advanced date of closing these centers. Toru Matsumoto, director of the Council's Committee on Resettlement, reported these difficulties following a national conference in New York City on Nov. 8, attended by representatives of religious and social agencies. The problem was being met by the organizing of community groups in several cities to take care of the problem in separate areas.

The Council announced in October a drive to recruit young men for careers in the ministry in rural churches. They were wanted particularly near campuses of agricultural colleges. Other problems the Home Missions Council started to work on included those of uprooted residents in congested housing areas in the reconversion period, a report having disclosed that only 25 per cent of residents in government housing projects had intentions of going "back home." Progress was reported in the work of establishing ministers among Negroes in rural areas, also. The Council, which entered its twenty-sixth year in work among migrant agricultural workers, found itself in the summer of 1945 serving 600,000 of them in 23 states, promoting church services, Sunday schools, Bible classes, recreation programs, counseling, language classes, and other activities. Of the migrants, 85,000 had come from Mexico, Jamaica, the Bahamas and Barbados Islands, under contract with the War Food Administration, with special housing protection.

Officials of the Home Missions Council were joined by Roman Catholics and Jews just before Christmas in calling attention to problems arising from the importing of these migrants and protesting conditions in the United States among migrant workers in agriculture. Adequate legal protection was urged under the Fair Labor Standards Act and the Social Security Act. Agricultural workers were reported to have no protection on minimum wages, workmen's compensation, old-age and survivor's insurance and unemployment compensation such as industrial workers were receiving. The signers of the protest included Msgr. John O'Grady, secretary of the National Conference of Catholic Charities; Msgr. Luigi G. Ligutti, executive secretary of the National Catholic Rural Life Conference; Dr. Hermann N. Morse, president of the Home Missions Council, and Dr. Mark A. Dawber and Miss Edith E. Lowry, its executive secretaries; Rabbi Herbert S. Goldstein, president of the Synagogue Council of America; and Gabriel Davidson, managing director of the Jewish Agricultural Society.

CHURCH PENSIONS BOARD

Average investment income of the pension boards of 21 major Protestant denominations and the national Y.M.C.A. and Y.W.C.A. for the year ended Nov. 1, 1945 was reported as 3½ per cent. Continued low interest rates were expected to make necessary the building up of larger reserves in anticipation of lower earnings, it was reported at the thirty-first annual Church Pensions Conference in New York City in November. The total investment income of the 23 agencies was $8,324,597. Total membership of the bodies reporting was 32,512,259. The number of ministers and secretaries was 126,415. The congregational and group units were 145.148. The number of pension beneficiaries was 34,146, an increase of 1.3 per cent. Benefits paid amounted to $14,928,038,844, an increase of 4.5 per cent. 828. The total of beneficiaries of all types was 43,053 who received 3.9 per cent more than the previous year. Total funds administered were $245,038,844, an increase of 4.5 per cent.

PROTESTANT DENOMINATIONAL ACTIVITIES

By Preston King Sheldon
Editor and Writer

MEMBERSHIP STATISTICS

Gains in membership were reported throughout 1945 by Protestant denominations where records were available. In several cases periodic conventions were omitted because of restrictions upon meetings by the Office of Defense Transportation. In others, convention sessions were shortened and attendance was reduced to comply with wartime regulations. Reports in most cases, therefore, were far from complete, except on post-war planning.

While the *Yearbook of American Churches,* edited under auspices of the Federal Council of the Churches of Christ in America, came out in 1945, disclosing that Protestant churches had 72,492,669 members, or above 52 per cent of the nation's population, the underlying figures were mainly for church years ending in 1943 and 1944. The last previous issue of the *Yearbook of American Churches* had been published in 1943. The 1945 edition revealed an increase in members of 3,991,483 with 256 religious bodies reporting. Further reports in 1945 changed this but by how much it was impossible to tell. The Protestant bodies also reported having 253,762 churches. Twenty-three Baptist bodies reported a total of 14,208,193 members; 20 Methodist bodies had 9,924,842 members; 20 Lutheran had 5,129,147 members.

OVERSEAS RELIEF

American Protestants were engaged in raising at least $50,000,000 for overseas relief and reconstruction programs for a four-year period, beginning July 1, 1945, and their efforts were largely being directed not only to that end but to organizing for administering funds when received. Personnel was needed to carry on distribution of money and relief supplies and render various other forms of aid and encouragement to the needy and suffering, particularly refugees. No small part of the whole problem was the necessity of restoring bombed out churches, supplying temporary places of worship, shelters, housing, and personnel to take up again the routine work of the Christian Church where it had been halted by war.

Of the total amount of money sought by Protestants for the overseas needs, $19,132,500 was designed to carry out a combined program of Protestant churches under the Church Committee on Overseas Relief and Reconstruction. The remainder was expected to be distributed by individual denominations through their own churches overseas and to special interest projects not represented in the united undertaking. These figures were separate from the current mission program of the churches and were specifically related to needs overseas arising from the war.

The denominations participating in the united program to raise the sum for the Church Committee on Overseas Relief and Reconstruction, included: Northern Baptist, Southern Baptist, Seventh Day Baptist, United Brethren, United Brethren in Christ (old constitution), Church of God, Congregational-Christian, Disciples of Christ, Evangelical, Evangelical and Reformed, Religious Society of Friends, Lutheran, Moravian, Methodist, Presbyterian (U. S. A.), Presbyterian (U. S.), Protestant Episcopal, Reformed Presbyterian Church in North America, Christian Reformed, United Presbyterian, Assemblies of God, Church of the Brethren, Churches of God in North America, and Universalist.

Dr. Leslie Bates Moss, executive director of the committee, reported in the autumn that more than 30,000,000 American Protestants could be relied upon to favor continued rationing and other necessary measures to meet minimum food requirements in the winter in Europe.

PROMOTION OF WORLD BROTHERHOOD

Under the impact of facing war needs and the sudden shock of the atom bomb which had a stimulating effect upon moral consciousness, Protestants along with other religious motivated groups were dropping old controversies and taking up in unheard of enthusiasm the task of mutually working to promote world brotherhood. New understandings were spread by interchanges of visits among religious leaders here and abroad. The object was to resume contacts with fellow Protestants throughout the world and to start anew on the missionary projects of the churches. There was more willingness to work with rather than compete with one another, and through the fast growing movement for a worldwide Protestant church organization, the ideals taught by Christian leaders for centuries were being implemented in cooperative measures to relieve sufferers, minister to the sick, prevent juvenile delinquency, the spread of social, economic, and racial tensions, and of social evils and diseases, and in other measures being taken to merge some communions so as to strengthen Protestant Christianity in its weak spots. Where mergers were not contemplated or possible, there was a greater degree of federated activity than had existed before the war. The trend toward world organization was found to be mounting in the direction of complete organization of a World Council of Churches for Protestants, with headquarters in Geneva, Switzerland and of urgent emphasis among Protestants upon putting their efforts into the building of the United Nations Organization, buttressed with a sense of moral responsibility.

VISIT OF THE DEAN OF CANTERBURY

Of particular moment in 1945 among Protestants was a visit to the United States by Dean Hewlett Johnson of Canterbury, who spoke at Protestant church gatherings in New York City, Boston, and Chicago, visited Joseph E. Davies, former Ambassador to Russia, in Washington, D. C., and spoke at a rally in Madison Square Garden, New York City, attended by thousands of listeners under the auspices of the National Council of American-Soviet Friendship. Interest was keen in what would be the dean's report on a trip he took in the summer of 1945 through western and central Asiatic republics of the Soviet Union and his interviews with Patriarch Alexei, of the Russian Orthodox Church, and Stalin.

The dean told a group of clergymen of all faiths brought together in New York City on the invitation of Presiding Bishop Henry St. George Tucker of the Protestant Episcopal Church, on Nov. 15, 1945, that he had found a new religious spirit arising in Russia. He looked upon Russia's younger generations as "fruitful soil" for the Christian message but declared "it must be real Christianity" and "a real faith in God" and not merely "ideas about God." Questioned by a heckler as to whether the word God was spelled with a capital "G" in Russia, the dean brought a round of applause from some 500 clergymen when he silenced his questioner by saying: "It isn't how you spell the word, but the reality behind it that means the most." He reported that Stalin had told him of a new spirit of friendliness between Church and State in Russia.

Greater understanding among the peoples of all nations was being stressed by all religious leaders in 1945 who took pains to include those of former enemy nations. This spirit was extended toward Germans through contacts made by Protestant leaders from America with Protestant leaders of Germany. Greater unity was expected among European Protestants and friendship among the peoples of the United States and Russia was continually stressed by American Protestant leaders. The mission program in Japan was also made ready.

SEVENTH-DAY ADVENTISTS

The number of members in churches throughout the world of the Seventh-Day Adventist denomination, reported as of Sept. 30, 1945, had reached 562,412, of which 211,552 were in the United States and Canada. Evangelists and teachers were working in leading countries and island groups, carrying on in 468 languages and publishing religious literature in 185 of them. The denomination was operating 61 publishing centers, 184 sanitariums, hospitals, clinics, and treatment stations. It had a system of schools from elementary grades to and including college, with more than 136,500 students enrolled. Its theological seminary in Takoma Park, Washington, D. C. was providing advanced courses for ministers, teachers and foreign missionaries. Intensive courses in health and medical care were planned for non-medical missionary appointees to foreign fields.

A fully recognized medical college has annually a total of 75 physicians in its graduating class, in two divisions, one at Loma Linda, Calif. and the other at Los Angeles. An investment of $3,000,000 was authorized in 1945 to expand the Los Angeles division devoted to clinical training. Total funds raised for the overall program of the church for 1944 were $28,685,434 of which $22,612,119 came from the United States and Canada. Up to Oct. 31, 1945 the tithe and other contributions in those two countries were running almost 10 per cent above the corresponding period in 1944, which was taken to indicate an increase in giving in the North American territory for 1945. Literature sales in the world field for the Seventh-Day Adventists totaled $8,500,000 in 1944. Denominational appropriations for 1946 were set at $12,400,000 with $8,000,000 of it set aside for foreign work. Another $15,000,000 was to come from tithes and local funds.

From Dec. 1, 1944 to Dec. 1, 1945, 136 recruits were sent from North American bases to the foreign mission fields. Since 1900, 5,165 new missionaries had been sent out to foreign service. The training of ministers was continued at nine senior denominational colleges in the United States, and these courses were followed by two years of supervised field service known as the ministerial internship plan. The candidates then went on with their theological training. Up to the close of the Second World War the Seventh-Day Adventists maintained medical cadet training in colleges, secondary schools, and among young people's groups. The basis of the instruction, including clinical practice, was formulated with the Surgeon General's Office of the United States Army and conducted by personnel trained in military and medical science. The purpose was to train young people in the efficient care of sick and wounded. Between 12,000 and 13,000 of them thus served with the armed forces on every war front.

Faced with widespread destruction of church properties in war-ravaged lands, Seventh-Day Adventists, in common with other church groups, were planning at the end of 1945 for rehabilitation of churches and church institutions, the replacing of personnel in medical centers, schools, and mission organizations. During 1945 the Adventists provided $5,000,000 to start such work, which was to be expanded in 1946. A special "million dollar" rehabilitation offering was made in 1945 and a second was planned to be taken on Saturday, July 27, 1946.

ASSEMBLIES OF GOD

Reports, in many instances incomplete, rendered at the Twenty-first Biennial General Council of the Assemblies of God in September, 1945, in Springfield, Mo., indicated that 5,000 ordained ministers were serving in excess of the 226,705 members of the fellowship reported two years previously. Substantial growth was anticipated. Offerings for home missions in the biennium totaled $177,161, and in addition the sum of $60,000 was realized from profits of the Gospel Publishing House. The Council reported purchase of property at Hot Springs, Ark., for a children's home and the undertaking of a building project. An orphanage was being planned at Carlisle, Ky. Among needs foreseen were similar homes in other areas as well as one for retired ministers and missionaries. A total of $13,392 was given to aid conscientious objectors.

Foreign missionaries of this denomination, which came into being as the result of a spiritual revival primarily stimulated by a group of believers in Topeka, Kan., in 1901, were at work in 50 countries at the beginning of the war, though in six countries their programs were interrupted. The countries were Borneo, Malaya, Poland, Hungary, Yugoslavia, and Russia. Alaska was included in its mission fields, and plans were afoot for new work in the East Indies, including

Sumatra. The total of all missionary offerings for the two years was $2,293,519, an increase of 60 per cent.

The biennium saw a quarterly, *The Missionary Challenge,* launched with a circulation of 15,000. In the field of literature, the denominational *Pentecostal Evangel* had been increased to 116,000 weekly circulation. Plans were made for a Spanish publication and also for publication of Gospel literature in other foreign languages. Radio broadcasts were already being made in Spanish to five countries.

Projects in the publishing field totaled 25 with their combined circulation exceeding 1,000,000.

As objectives to be realized within three years, the following were proposed to the Council: enlargements of missionary staff to 1,000; organization of missionary prayer bands; establishment of new Gospel literature and distributing centers in all countries served; suggestion of daily 3-cent gifts to missions by all communicants; and increased use of radio broadcasts in missionary work.

NORTHERN BAPTISTS

The Northern Baptists launched a drive for $14,000,000 on Oct. 1, to cover worldwide post-war needs, the drive to end on April 30, 1947, coinciding with its statistical year. This was in addition to the denominational regular budget. The total budget for the two-year period, ending April 30, 1947, was $22,000,000. The work was divided into educational and spiritual in one grouping and in the second, financial and promotional needs. The regular unified budget for 1945-46 was to be lifted 10 per cent to $3,600,000, and by 1946-47 another lift was to bring it to $4,400,000. Quotas were set for constituent churches to contribute in an overall program. Over a six-year period, it was planned to increase the unified budget to $6,000,000 and keep it there.

The post-war fund was to be used in reconstruction, rehabilitation, and relief in China, Burma, Assam, and the Philippines. Allocations to Europe were also planned.

The 1944-45 total denominational budget was $5,025,000 and was reported oversubscribed by $100,000.

The denomination reported having 7,314 churches with 5,400 pastors and 1,570,446 members. There were 6,948 Sunday Schools. Total gifts to missions were $6,531,575; total to World Emergency Fund, $1,463,025; total local church expenditures were $24,944,484.

SOUTHERN BAPTISTS

Because of war conditions the annual sessions of the Southern Baptist Convention, usually held in the spring, were abandoned. The next convention meeting was set for May, 1946, at which plans called for the celebration of the centennial of the convention. Many Baptists in the South celebrated this anniversary locally in 1945. Objectives were to add 1,000,000 communicants and raise $20,000,000 for missions, the latter goal being more than achieved but only 300,000 baptisms being reported. This was the largest membership growth in their history, however.

Statistics for 1944 were: churches, 25,965; ministers, 24,011; members, 5,667,926; Sunday Schools, 24,626; pupils, 3,380,630; gifts, $76,599,420, of which $17,303,518 went to missions; value of church property, $259,740,714.

UNITED BRETHREN IN CHRIST

Approval was given in May, 1945 at the General Conference of the Church of the United Brethren in Christ of the proposal to merge with the Evangelical Church, which at its general conference in 1942 had approved the plan. Further ratification, however, was necessary on the part of the annual conference of both bodies. The United Brethren reported 20,580 conversions among its 28 district annual conferences and the receiving of 13,973 members on confession of faith in the year ended in October, 1945. Membership reported for 1944 in the United Brethren's communion was 433,480 in 2,748 churches. Local church expenses in the church year ended in October, 1945 were $6,470,676; for missionary, and benevolences the total was $1,925,488. Total contributions were $8,396,164.

CONGREGATIONAL CHRISTIAN CHURCHES

Resolutions adopted in October by the prudential committee of the American Board of Foreign Missions of the Congregational Christian Churches emphasized as a vital necessity the Christian task of world evangelism in order that "a world conscience shall be established as the standard of right and wrong for public procedure before it is too late." The committee in its statement said: "We find ourselves constrained to insist that no political nor economic order in itself can bring peace unless it be undergirded by a world conscience committed to the Christian ideal of human brotherhood and fair play." The statement and resolutions drawn up on the atomic bomb were the work of the board at its 136th annual meeting. One of the resolutions hailed "with hope the emergence of the United Nations Organization" from the Second World War. The Board is the oldest foreign missionary body in America.

At the beginning of October, it announced closing its fiscal year with a surplus of $22,247, having had receipts of $1,130,096, an increase of 10 per cent over the previous year. Contributions came from 5,800 churches who increased their gifts by 17.8 per cent; from 2,500 individual donors who gave a total of $100,860; legacies and matured conditional gifts and miscellaneous sources. Increased costs to support missionaries raised total expenditures to $1,112,969.

The office of the General Council of the denomination in New York City, which held no meeting in 1945, nevertheless published a report in July showing an increase of more than 20,000 church members in 1944, the highest gain in 20 years, bringing the total of communicants to 1,113,960. The preceding year's gain had been 16,000. There were 32 new churches organized and 48 merged or closed in the latest year. The number of clergymen withdrawn for war work, including chaplains, was 600.

Total benevolence gifts for 1944 were $3,350,919. The amount for home expenses was $17,467,525, an increase of $1,255,057. Funds of the denomination in 1944 amounted to $50,656,215. The General Council announced a drive for $4,500,000 for domestic and foreign post-war needs, to be raised in three years.

DISCIPLES OF CHRIST

Offerings from churches of the Disciples of Christ in the year ended June 30, 1945 under a unified promotion plan set up ten years before, totaled $1,875,649 and were $300,741 higher than the previous year, a gain of 19.1 per cent. This total exceeded by $999,271 the total in the first year. C. O. Hawley, director of the unified promotion of expanding services, who published the report, appealed for a "great religious passion" to move our nation and world to "build, not for themselves, but build in the light of the total human problem of the earth"; otherwise, he said, "history will repeat itself."

PROTESTANT EPISCOPAL CHURCH

The National Council of the Protestant Episcopal Church which conducts the business of the denomination between sessions of the Triennial General Convention, launched on May 1, 1945, a Reconstruction and Advance Fund drive with the twofold idea of: (1) The creation of a deep feeling of appreciation for the missionary work of the Church throughout the world and the relationship between that work and a lasting peace. (2) The raising of a minimum of $5,000,000 for reconstruction in areas overrun by the destruction of war—China, Japan, the Philippines—and advance in the war areas and other strategic centers, among Negroes in the United States, in Latin America and Liberia, and in the armed forces through the chaplains.

An every-member canvass was planned to take place in February, 1946 throughout all parishes in the United States. Particular emphasis was made upon the job of chaplains continuing in the days immediately following the end of the Second World War. Their ministry did not end with the fighting. A more difficult task was expected, in fact, in the first days of peace. Their ministry was defined as not being limited to meeting immediate needs and problems of fighting men. Episcopal chaplains in the armed forces were reported to have been decorated for valor, as well as being killed in action in a few cases or dying from other causes.

The number of baptized persons was 2,269,962. The total of communicants was 1,568,152 in 7,818 parishes and missions. There were 394,456 church school students with 46,336 teachers. The clergy number was 6,449. There were 209 ordinations; 68,868 confirmations; 86,410 baptisms.

Twelve new bishops were consecrated in 1945, three of whom were assigned to mission work. The latter were: R. H. Gooden, Panama Canal Zone; Bravid W. Harris, Liberia and Arthur B. Kinsolving, II, Arizona. The remaining nine were: Thomas H. Wright, East Carolina; William R. Moody, Lexington; Henry I. Louttit, South Florida, Suffragan; Alfred L. Banyard, New Jersey, Suffragan; Donald B. Aldrich, Michigan, Coadjutor; Conrad H. Gesner, South Dakota, Coadjutor; Frederick L. Barry, Albany, Coadjutor; C. Avery Mason, Dallas, Coadjutor; and John E. Hines, Texas, Coadjutor. The following bishops died in 1945: H. P. Almon Abbott, Lexington; Julius W. Atwood, retired, Arizona; and Frank E. Tourst, retired, Idaho.

The national council's department of promotion continued to utilize radio and motion pictures as media for proclaiming the Church's message. Its second professional sound motion picture, "Thy Will Be Done," was released in the autumn of 1945. The department also helped organize a Protestant film association. In radio, participation was continued in Columbia's Church of the Air, Mutual's Radio Chapel, and in local station programs. The denomination took part in national clothing drives and the sending of Christmas parcels to distressed peoples of Europe and Asia. Through the Presiding Bishop's Fund for World Relief, Episcopalians in 1945 gave more than $50,000 for the aid of afflicted peoples.

The next Triennial General Convention of the Protestant Episcopal Church, announced in 1945 to take place in October, 1946 in San Francisco, was changed to open on Sept. 10, 1946 in Philadelphia, Pa.

EVANGELICAL CHURCH

Bishop John S. Stamm, president of the Board of Publication of the Evangelical Church, in a foreword to the 1946 year book of the denomination, provided in proof form as the year 1945 closed, hailed the anticipated merger in 1946 of the Evangelical Church with the Church of the United Brethren in Christ. He announced that the 1946 year book of the Evangelical communion had been prepared "to further aid in this work." He wrote that both churches "shared in the much needed, but exacting, service of following the pioneers as they pushed the frontiers westward and northward, and the planting of the Church in the outposts in the United States and Canada. Both have extended their missionary services into many other lands." They had also developed activities in periodical publishing, in colleges, seminaries, and leadership training programs.

The general administrative council of the Evangelical group reported total receipts for 1944-5, ending the fiscal year on June 30, to be $265,587, or 102 per cent of an apportioned goal for general causes. The financial worth of the publishing interests of the group as of Aug. 31, 1945 was $1,061,166. There was a gross balance of $1,315,110 in the treasury. More than 600 beneficiaries were reported receiving pensions totaling $165,000 annually.

The total membership of churches of this communion as of Sept. 30, 1945 was 260,063. There were 1,952 congregations and 1,974 clergymen. The

Sunday School enrollment was 260,640. New members added were 16,434. Receipts for missions came to $821,991 and for benevolences, $700,394. The grand total for all purposes was $7,308,046. Local expenditures total was $3,488,583.

FRIENDS

The activities of the Five Years Meeting of the Friends in America as summed up in reports at sessions held in Richmond, Ind., Oct. 17-23, 1945, disclosed as the result of expansion in foreign and domestic fields a rise in disbursements of contributions from $375,603 in 1940 to $2,825,217 for the year 1944. Contributions other than money had a value of $264,188 in 1944 and included clothing, medicines, medical equipment, etc. The clothing committee which in 1940 had shipped 35 tons, reported 165 tons shipped the first seven months of 1945 and 92 more tons on hand for shipment. Such shipments came from contributions from sewing groups all over the country and from Friends' Centers in several large cities where clothing was cleaned, mended, and packed. Most shipping was done from Philadelphia and New York. The largest lots went to France, Sweden, Switzerland, or to places in the United States. Branches were opened in southern and northern California and in Chicago, and offices were set up in Seattle and Hawaii in aid of Japanese Americans.

The American Friends Board of Missions celebrated its fiftieth anniversary with the announcement in 1945 that there were 675 mission boards and agencies in North America, the British Isles, and Continental Europe. In most of the mission fields a decided increase in the size and strength of educational institutions was reported. In Africa the enrollment of students advanced from 17,000 to 24,000. In Jamaica, five educational institutions at Highgate were merged in the five-year period in one known as the Friends Educational Council, with the primary objective of vocational and craft work. Contributions for work in Mexico were increased fourfold.

Following the liberation of France, an international relief group, "Secours Quaker," was organized by Friends from America, Great Britain, and France. Delegations worked in Paris, Caen, Le Havre, Marseille, Toulouse, Montauban, and Perpignan, feeding children, distributing clothing, visiting prisons, and engaging in minor reconstruction and transportation projects. Quaker centers were cut off in Vienna, Amsterdam, Copenhagen, Berlin, and Paris at the outset of the war. Work was conducted among refugees, therefore, from Geneva and from new offices in Lisbon, North Africa, and Madrid, the latter office being kept open following the end of the Second World War. Considerable work was also being carried on in China, with members of the Society from America, Great Britain, China, New Zealand, and Canada cooperating. The Friends service committee sent more than $660,000 worth of milk, medicine, and vitamins for emergency relief to famine sufferers in India, using more than 300 Hindu, Moslem, and Christian agencies as distributors. The reports of operations of the various boards of the American Friends Five Years Meeting, partially under a reorganized united budget plan inaugurated April 1, 1944, disclosed that the Board of Missions collected $220,114 and paid out $222,503. Total receipts were $518,655 for all boards.

The American Friends Service Committee reported 1,734 men of its membership in civilian public service camps as conscientious objectors with a total cost at the time of the report of $1,920,000 for their support.

LUTHERAN CHURCHES

A report of Lutheran accomplishments for 1945 gave little statistical information concerning the churches themselves. In fact, attention was turned to services being performed abroad, and most leaders were busy performing such services. Of primary importance to them was restoration of relations with Lutherans in Europe, whence they had sprung under the Protestant Reformation. American leaders went overseas in March visiting bishops in the Scandinavian countries and the headquarters of the World Council of Churches in Geneva. Dr. Sylvester C. Michelfelder, of Toledo, O., took up residence in Geneva in midsummer and remained to act as representative of the American section of the Lutheran World Convention to the World Council of Churches. A fund of $2,500,000 was raised by Lutherans in America in 1945, a large part of which contributed to European relief. A goal of $10,000,000 was set for 1946-47.

Archbishop Erling Eidem, Primate of the State Lutheran Church of Sweden, was named in December as president of the executive committee of the Lutheran World Convention, being elected at a meeting in Copenhagen, Denmark. Organized in 1923, the Lutheran World Convention federated Lutheran bodies in 28 countries, embracing most of the 80,000,000 Lutherans throughout the world. The committee's meeting in Copenhagen was the first since 1939 and was attended by churchmen from Denmark, Sweden, Norway, Finland, and America. Dr. Michelfelder was elected executive secretary, succeeding Dr. Hans Lilje, of Germany, underground leader of the German Student Christians, who had held the office since 1937. Archbishop Eidem succeeded Bishop August Marahrens of Hanover, Germany, who had been president since 1935 and whose resignation followed charges by Lutheran leaders that he had failed to oppose the Nazis.

Because of the work abroad in Europe closer relations were growing among Lutherans at home in America wherever they worked on common projects. This trend became apparent in January, 1945, when the National Lutheran Council, representing eight Lutheran bodies, adopted a new constitution which pledged its 3,500,000 members to cooperate in activities never before attempted together. The Lutheran Synod of Missouri, Ohio, and other states, representing 1,500,000 Lutherans, was working with the others through 1945.

New service centers from which to serve men and women in the armed forces were set up in Paris, Manila, Chungking, and Honolulu. Assistance was being given through Army and Navy chaplains and through 75 of these centers, where, of course, work diminished toward the end of 1945, but a new type of ministry was evolving because of the needs of returning service personnel, particularly the wounded. Under the National Lutheran Council's Division of Welfare, chaplains were obtained for veterans' hospitals to the full extent of the Lutherans' quota as allotted by the Federal Government.

The Church's efforts to follow the migrating of workers and families to war industry areas resulted in an emergency ministry to 41 war housing centers by V-J Day. Organizing of 24 regional Lutheran Home Mission committees was completed, and a rural church life program was set up on a cooperative basis. The Lutheran Commission for War Prisoners distributed more than 750,000 books to them in 1945, including Bibles, Testaments, hymn books, and catechisms. With the addition of welfare centers in four cities in 1945, the Lutheran family welfare societies were serving in 25 cities. Pastoral work was being carried on in 99 veterans' hospitals and on 155 college campuses. A devotional program of over 27 radio stations in 19 states was inaugurated. Slide films showing conditions in many parts of the world were also issued to help dramatize an appeal for funds to help.

More than 2,000,000 tons of clothing and bedding was asked of Lutherans in America in November. A commission of three leaders was sent to Europe in that month to confer with Lutherans there; they were Dr. Ralph H. Long, executive director of the National Lutheran Council; Dr. Franklin Clark Fry, president of the United Lutheran Church in America; and Dr. J. A. Aasgaard, president of the Norwegian Lutheran Church of America.

METHODISTS

The Methodists in 1945 gave their principal energies to raising $25,000,000 for relief and reconstruction in war-torn countries, and in the first four months of 1945 had pledges and cash totaling $27,500,000, of which $22,000,000 was paid in before the end of the year. Preliminary work had been done in the fall of 1944 on this drive, which was authorized by the General Methodist Conference which met in the spring of 1944 in quadrennial session at Kansas City, Mo. Secondary emphasis was given to an evangelistic campaign for 1,000,000 new members of the Methodist Church; also to arouse from indifference some 1,125,000 inactive church members. Training schools in evangelism were organized in 33 episcopal areas, special preaching missions were undertaken, and home visitations made. A weekly periodical was undertaken to promote the evangelistic drive as a "New Life Movement," and a tabloid for Methodist young people was also started in Nashville, Tenn. Somewhat overlapping the $25,000,000 relief and reconstruction drive, which was established as a phase of a "Crusade for Christ," the Committee on Overseas Relief raised $673,296, of which $216,619 went to China relief.

Active members in the Methodist Church, according to 1944 figures, numbered 8,046,129. The Woman's Society of Christian Service had 1,161,389 members and raised $7,017,113 for its program of home and foreign missions and other services. The total raised by the church at large for ministerial support was $42,035,097. A total of $25,508,723 was paid on church debts, buildings, and improvements, which was more than $4,000,000 higher than the year previous. There were 21,104 pastoral charges and 41,067 preaching stations. Indebtedness on buildings decreased from $37,498,263 to $25,587,960. The total value of churches, equipment, and parsonages was $731,403,538.

Contributions to benevolences were $21,598,525. The Church paid $116,223,876 for all purposes. The Board of Publication had its largest year with sales of $8,315,232. Its circulation of church school leaflets and story papers increased to 89,000,000.

Changes reported in the Council of Bishops included the retirement on reaching necessary age, of Brenton T. Badley, Delhi, India; John M. Springer, Elizabethville, Belgian Congo, Arthur F. Wesley was elected to succeed Bishop Juan E. Gattinoni of Buenos Aires, Argentina, and John A. Subhan, a Mohammedan convert, was elected to succeed Bishop Badley in India. Bishop G. Bromley Oxnam, who had succeeded Francis J. McConnell on his retirement in 1944 from the Methodist New York Area, represented American Protestants at the enthronement of the new Archbishop of Canterbury in April. He then visited the Continent, and the Mediterranean and North Africa-Middle East war theaters on an official mission to chaplains. In November, Bishop Oxnam was one of three representatives of Protestantism in America to Protestants in Germany.

The Methodist merger of May, 1939, which had been stubbornly opposed by a minority of dissidents and was upheld in the courts, nevertheless resulted in the organizing by 46 congregations of the former Methodist Church, South, into the Southern Methodist Church, with 22 ministers.

The Council of Bishops of the Methodist Church, meeting early in December, 1945 in Buck Hill Falls, Pa., opposed peacetime compulsory military training, sending their statement to President Truman, the Secretaries of War and Navy, and chairmen of Congressional committees concerned. The bishops regarded universal compulsory military training in peacetime as a betrayal of our historic democratic institutions and a possible step toward bureaucratic fascism and a threat to the moral life of youth. The National Methodist Student Conference, meeting for five days starting Dec. 28, 1945 at the University of Illinois, with 1,370 students delegated from 200 colleges, in a poll on this question, voted 828 to

47 against compulsory military training.

The Methodist Committee on Chaplains reported that 132 Methodist chaplains had received 162 decorations for valorous conduct in the Second World War. Nine were killed in action and 12 died from other causes. More than 1,650 Methodist ministers served as chaplains in the armed forces in the war.

CHURCH OF THE NAZARENE

This denomination sent out 40 missionaries, principally to Africa, India, China, and Latin America. A total of 132 new churches was organized in 1945. The seven colleges of the denomination, six in the United States and one in Canada, were declared free of debt in 1945, and several had begun expanded building programs. A central graduate seminary, known as the Nazarene Theological Seminary, first of the denomination, was established in Kansas City, Mo., headquarters of the denomination. The seminary opened Sept. 19 with 61 graduate students preparing for the ministry. The denomination also was conducting in 1945, over 40 radio stations, an international religious broadcast. Although complete figures were not tabulated, per capita giving for the year averaged more than $60 a member.

PRESBYTERIAN CHURCH, U. S. A.

Meeting under war conditions with reduced attendance because of restrictions placed upon conventions by the Office of Defense Transportation, the 157th General Assembly of the Presbyterian Church in the U. S. A. assembled in Minneapolis, Minn., May 24 through May 30, 1945. Some 9,000 churches in the United States were represented. Approval was given to raising a fund of $27,000,000 for relief and rehabilitation in the post-war period at home and abroad. The budget adopted had the following as minimum foreign needs: European relief and reconstruction, $3,654,500; Asia, $1,575,000; continuing emergency needs for missionaries $1,240,000; temporary emergency reserve and relief reserve for Europe and Asia, $362,115, making a total of $15,471,615 for needs abroad. In America for administration by the Board of National Missions, the goal set was $3,144,780: for education, including aid to 39 Presbyterian colleges, $1,004,390; Board of Pensions, $3,680,000; camp and church activities, $2,107,178; for the American Bible Society, $246,280; administration and promotion, $837,930; and reserve, $507,827. The entire fund was to be raised in from two to two and a half years from June 1, 1945. The Stated Clerk reported memberships on confession of faith had kept pace with the previous year, running between 93,000 and 100,000. The denomination's total members, reported by the Presbyterian War-Time Service Commission, in 1945, was 2,161,872. The commission reported that gifts in an annual collection taken the previous year, totaling, for wartime service work, $1,432,905, had helped cover increased wartime costs in transporting 99 missionaries to their fields of service and 136 returning on furlough, as well as repatriating 70 missionaries from the Philippines. At least 21 more repatriations were expected in 1945-46. By the end of November, more than 50 were ready to take passage for foreign fields. A total of 316 grants were also made in aid to refugees, parish workers, pastors, civilian and industrial chaplains, student pastors and internes in war industry areas at home, through 84 presbyteries and 26 synods. Of these grants, 34 were for emergency buildings and improvements.

In May, 1945 the denomination's chaplains in service numbered 725, in addition to 12 who had died on active duty and 30 others discharged for disability or other reasons. The chaplains' group represented 25 per cent of all active pastors in this Presbyterian communion who were under 50 years of age.

The General Council of the denomination reported receipts of $14,990 for aid of conscientious objectors in civilian public service camps, seeing little hope of normal support of these men by the Federal Government.

Dr. Hugh Thomson Kerr, former pastor of Shadyside Presbyterian Church, Pittsburgh, Pa., returned in November from three months in Europe representing the Presbyterian Restoration Fund, and reported on damages and needs abroad. He reported that "the Church is the only thing left in Europe with any solidarity" and that "the most urgent need today in France and other war-devastated countries is moral stability." Dr. Kerr also was a representative of the World Council of Churches while abroad.

PRESBYTERIAN CHURCH, U. S.

This division of the Presbyterian denomination, covering the area of the Southern States, had in its 17 synods in 1945, subdivided into 87 presbyteries, a total of 3,513 churches, 2,586 ministers, and 580,369 members. During the year, 20,714 members were received on profession of faith and 25,954 by certificate. Baptisms were 21,594. The contributions for current expenses were $5,721,307; for pastors' salaries, $3,811,606; for building expenses, $3,443,950; and for benevolences, $5,656,925. The total for all purposes was $18,633,788, an increase over preceding year of $2,600,000. The total per capita gift was $32.10.

The eighty-fifth General Assembly was held in Montreat, N. C., in May, 1945, with 365 present. Actions taken included instructions to the Committee on Cooperation and Union to continue "to explore and search in suitable ways a means of bringing into one body all branches of our Presbyterian family"; specifically to "endeavor to perfect as soon as practicable the plan for reunion of the Presbyterian Church in the U. S. A. with the Presbyterian Church in the U. S." A budget of $30,000 was set for work of the radio committee. The communion had 151 chaplains in the Army and 119 in the Navy. Plans were made for the rehabilitation of mission work in the Orient and for promoting home missions, particularly in areas where there had been sudden shifts in population. Rev. Thomas K. Young, D.D., of Idlewild Church, Memphis, Tenn., was elected moderator. The 1946 General Assembly was to meet May 23, in Montreat, N. C.

UNITED PRESBYTERIAN CHURCH

This communion had under consideration in 1945 a proposed merger with the Reformed Church in America. The financial goal it had for worldwide Christian work was $2,310,000. It had 198,759 members, 844 congregations, 922 ministers, and received in contributions a total of $6,230,350 or an average of $31.35 per member. Its moderator for the ensuing year is Rev. James M. Ferguson of Bellevue, Pa. Its clerk is Dr. O. H. Milligan, 805 Taylor Avenue, Avalon, Pittsburgh, Pa.

REFORMED CHURCH IN AMERICA

The annual report of the General Synod of the Reformed Church in America in June, 1945, showed 742 churches, 892 ministers and 173,975 members. The amount raised for benevolences was $1,209,518 and for congregational expenses was $4,773,776. The synod voted at its annual meeting to open a new mission field in Ethiopia and adopted a budget of $300,000 for relief and rehabilitation. Hope was expressed for merging with the United Presbyterian Church in 1947.

CHRISTIAN REFORMED CHURCH

This denomination recorded 130,000 members in 1945, with 311 ministers, 345 congregations, and had 22 chaplains in the armed forces. Several radio broadcasts were being carried on local stations. Total receipts for missions for the year ended Dec. 31, 1944 was $203,482. The denomination, through a committee for Netherlands War Relief, reported $125,000 received up to June 6, 1945. An annual year book was scheduled to be published in February, 1946, obtainable from the Christian Reformed Publishing House, 47 South Jefferson Street, Grand Rapids, Mich.

SALVATION ARMY

The Salvation Army carried religious and social services to 225,000,000 servicemen and women on 26 fighting fronts during the war. War urgency needs were met by 3,000 Red Shield Clubs, which were often improvised huts set up on beachheads, in jungles, and at desert outposts. In the United States, Salvation Army clubs and those operated through the United Service Organization, provided personal services, including mending clothes, wrapping and mailing packages, checking valuables, emergency transportation, financial and legal aid, sleeping accommodations, voice recordings, and home hospitality. Salvationists visited 595,000 wounded and sick service men in hospitals. Up to November, 1945, the Salvation Army had 1,000 mobile canteens which traveled a distance equivalent to four times around the world. Many were equipped with library, radio set, film projector, record player, and facilities to serve 4,600 men on a trip. There were 23 such units attached to the invasion army in France. An auxiliary service to the global land (Red Shield) canteens was provided in Australia by a motor launch which met sea and land convoys and visited remote outposts on inland rivers.

Among projects carried out were: a home in France for children whose parents could not be found; a refugee boys' home and "Warphanage" in China; soldiers' and sailors' rest homes in South America and the Middle East; homes for evacuees, demolition crews, and moving units in England after bombings; grocery stores in Canada for stranded families in war-boom towns; dining rooms serving meals to war workers' children; restaurants in Belgium for refugees; hostess houses throughout the United States for families and friends of enlisted men.

Evangelical work on the fighting fronts was adapted to circumstances and location. Religious guidance and consolation were given to all individuals requesting them, regardless of creed, race, or color. The year 1945 was marked in the United States by a national spiritual campaign; intensification of youth activities; and increased war service to veterans in readjusting to civilian life. Coordination was directed by Commissioner Donald McMillan, national secretary, New York City.

The United States, for Salvation Army Administrative purposes, is divided into four territories, each headed by a commissioner as territorial commander. These are in turn separated into divisions, with divisional commanders. There was in 1945 a total of 1,381 Salvation Army Corps in all principal cities.

The Salvation Army operated 234 social welfare units, such as social service centers, hotels, and lodgings for men in these cities, and had 65 homes and hospitals for women. In many rural areas, the Army's work was also carried on. The Army had 2,000 trucks and 109 salvage centers in the United States, cooperating in the United Nations drive for clothing for Europe. Its first shipment of new clothing to reach France left in May, having been collected in London from the United States, Canada, Australia, and other countries. The first Salvation Army European relief consignment was sent the same month from Britain to Holland, with 12 rehabilitation officers, and included in the convoy, a mobile chapel. Many local organizations in Hawaii liberally aided the Salvation Army in its work in those islands, following Pearl Harbor.

CHRISTIAN SCIENCE

More than 1,000 Christian Science wartime workers were busy in 1945 under the guidance of the Camp Welfare Committee of the Mother Church, the First Church of Christ, Scientist, in Boston, meeting spiritual and material needs of men and women in the armed forces at home and abroad. Wherever possible, Christian Science services were conducted. There were 25 chaplains in the Army and one in the Navy. Four received bronze stars for meritorious service. The Christian Science churches maintained reading rooms and supplied Christian Science literature to rest rooms and recreation centers for members of the armed forces, including service women.

A Christian Science relief committee supplied money and clothing to sufferers in the British Isles, Europe, and Russia, without regard to race, color, or creed. This was in addition to thousands of knitted garments supplied to men and women in the armed forces of the United Nations. With the end of the hostilities in Europe, a Christian Science Post-war Relief Committee was organized.

The Mother Church prepared transcribed radio programs used over more than 100 radio stations in the United States and Canada. The *Christian Science Monitor,* an international daily newspaper, maintained a large staff of correspondents throughout the world, including all war theaters. The *Monitor* was honored with a gold medal for outstanding service in fire-prevention. It also received the Helms Athletic Foundation award for noteworthy achievement in sports. It won first honorable mention in the over-50,000 circulation group of dailies in the annual exhibit of newspaper typography under the auspices of N. W. Ayer and Son, Inc.

The Christian Science Board of Directors announced the opening on May 28, 1945 of a new department of the executive offices of the Mother Church, to be known as the Sunday School Activities Division.

UNITARIANS

Two new churches were started by Unitarians in the year ended May 1, 1945. As of April 1, the Unitarian Service Committee was carrying on its program in 15 countries and on five continents, the total staff numbering 112, having started the previous Oct. 1, on a budget of $500,000 and working up to $750,000, by the end of the church year. It prepared, with the end of hostilities, to do post-war work. The collection of 9,000 pounds monthly of clothing for shipment to Europe was continued throughout the year. From an active list of 375 ministers, 36 were serving as chaplains with the armed forces and 18 others were engaged in full-time war service. The president of the American Unitarian Youth Council was selected in 1945 as one of 25 delegates from the United States to attend a World Youth Conference in London in October.

THE ROMAN CATHOLIC CHURCH

By HENRY P. LEFEBURE
NATIONAL CATHOLIC WELFARE CONFERENCE

STATISTICS

Membership of the Catholic Church in the United States in 1945 totaled 23,963,671, according to the figures given by the *Official Catholic Directory.* A record total of 14,302 Catholic parishes are in operation, with 13,463 of them having resident pastors. There are, in addition, 5,048 chapels and 5,164 mission churches.

There are now 160 members of the American Hierarchy presiding over 100 dioceses and 22 archdioceses. These also include for statistical purposes as American dioceses: The Vicariate-Apostolic of Alaska; Honolulu, Hawaii; the Abbatia Nullius of Belmont Abbey, N.C., as well as the Pittsburgh (Greek Rite) and the Ukrainian Greek Catholic Dioceses, but not the Military Ordinariate of the Army and Navy.

The number of ordained clergymen —38,451—is the highest on record. There are 25,567 diocesan priests and 12,884 religious order priests, an increase of 702 over the 1944 figures. Among professed religious, the number of Sisters has increased by 4,092 to a total of 138,079, and the number of Brothers by 432 to 6,594.

Educational institutions have increased, despite war conditions, by 231 to a total of 11,075. Elementary parish school pupils have increased by 32,803 to a total of 2,029,012. Parish high school enrollments are 278,619, an increase of more than 10 per cent over 1944. The number of seminarians has risen by 707 to a total of 21,523; but there are 5,280 fewer college students than one year ago, now totaling 92,426.

A total of 84,908 converts entered the Church during the year. Infant baptisms numbered 710,648, and deaths increased by 2,456 to 264,747.

The total number of American youths under Catholic instruction is estimated at 3,205,804, an increase of 167,948 over the 1944 figures.

Twenty new institutions bring the total of Catholic general hospitals to 685, while the former bed capacity of 69,537 has been increased by 17,634 or 25 per cent in one year, to the record total of 87,171.

The number of patients treated annually in general hospitals totals 3,290,821 and in the 101 special hospitals and sanitoria, 56,687.

There are 48,329 children in 373 Catholic orphanages and infant asylums and 18,925 children in foster homes. As a means of providing religious education for Catholic children in public schools, 8,053 religious vacation schools are operated with a total enrollment of 683,484 students.

WAR EMERGENCY ORGANIZATIONS

The first national organizations to meet war emergencies were established by the Catholic Hierarchy at the Annual General Meeting of November, 1940. These were the National Catholic Community Service, designed to serve members of our armed forces and production workers in new war-created communities, and the Bishops' War Emergency and Relief Committee, whose chief function would be to raise funds for relief of human needs in war-stricken countries abroad. Later, in February, 1943, the Administrative Board of the National Catholic Welfare Conference established War Relief Services-National Catholic Welfare Conference actually to administer a war relief program.

NATIONAL CATHOLIC COMMUNITY SERVICE

During the year, the National Catholic Community Service, a member agency of the USO, showed flexibility in remaining keyed to successive changes in the war tempo, and in rapid adjustment to a more specialized program as the needs of returning servicemen and women, the wounded, and those disabled, mentally and physically, presented themselves with their problems of transition from military to civilian life. Allied problems connected with the vast army of workers in war plants, many of which ceased production during this period, were handled by the Women's Division of NCCS, the migrant workers receiving assistance either in returning to their original homes or in finding new employment and more adequate housing in the town in which they had worked.

NCCS continued immediate service to returnees in work adjacent to military hospitals and near established military concentrations.

Program material included religious, recreational, and educational activities. A monthly total of 154,000 volunteers assisted in operations with an average of 1,164,000 hours of service per month. The peak number of NCCS Clubs was reached in July 1944, with 492 USO operations.

Material gathered by the department of research and statistics will form the basis for an authentic history of this service of the Church in the Second World War. Part of that history will be the effort made for Negro servicemen and women, which continued in the period under review to receive careful attention. During 1945, NCCS conducted 56 Negro operations and employed the services of 93 trained Negro leaders.

A record of NCCS independent operations, financed by the Bishops' War Emergency and Relief Committee, here and abroad, is particularly interesting. Service clubs operated successfully in Rome, Naples, Florence, Heliopolis (near Cairo), Milan, and Paris. More recently, the work extended into Manila.

BISHOPS' WAR EMERGENCY AND RELIEF COMMITTEE

Funds raised by the Bishops' War Emergency and Relief Committee in Catholic churches throughout the United States were used to provide general relief to war victims, prisoners, refugees, and homeless. The majority of the distribution was made through the Vatican among all distressed peoples on the basis of the greatest need. Included was general relief in Luxembourg, Belgium, Italy, the Orient, France, Greece, Holland, North Africa, Malta, and the Balkan countries.

Aid was given to refugees both in the United States and abroad, as well as to American prisoners of war in Europe and the Orient, and to provide Catholic services for enemy prisoners in the United States.

Assistance was given to Catholic chaplains in the armed forces in the form of religious equipment, supplies, and religious articles necessary to the fulfillment of their duties. Servicemen's clubs overseas were supported in Italy, Egypt, France, and the Philippines.

The Church in Mexico also was aided by grants given towards the operation of Montezuma Seminary, located near Las Vegas, N. M., where 350 Mexican candidates for the priesthood are being educated.

WORK OF THE NATIONAL CATHOLIC WELFARE CONFERENCE WAR RELIEF SERVICES

A vast work of mobilizing Catholic efforts on behalf of the war-stricken, as well as the actual task of distribution of relief, has been accomplished by War Relief Services-National Catholic Welfare Conference, a participating agency of the National War Fund.

Since the beginning of operations on Aug. 1, 1943, a contribution in the value of $42,728,542 has been made to war sufferers in 42 countries. A large part of this contribution is made up of 43,077,000 pounds of clothing and foodstuffs having a money value of approximately $35,000,000, collected through the Catholic churches of the United States.

An average of one ship every 10 days has left the United States since 1943 for the areas of need. Among the supplies, the quantity of milk, both powdered and fluid, shipped abroad by War Relief Services was sufficient to provide 1,340,025 children with an eight-ounce glass daily for one month. There was enough cod liver oil to provide 102,000 infants with the necessary minimum requirements of Vitamins A and D each day for six months.

Six million nine hundred eight thousand articles of clothing and bedding and 356,535 pairs of shoes, together with materials sufficient for the repair of 120,000 pairs of shoes were shipped, also surgical instruments and accessories sufficient to equip 256 operating rooms, material sufficient to stock 3,675 community first aid stations, and an amount of soap equivalent to 2,535,626 cakes of the household size.

Transportation equipment from a motor cycle to truck trailers shipped is sufficient to keep more than 200 tons of relief materials on the move at one time.

Over 10,000,000 educational, occupational, recreational, and religious articles have been sent to American, Italian, German, and Japanese prisoners of war.

Large relief programs are being operated in Belgium, France, Holland, Italy, the Philippines, China, Poland, for the Poles outside of Poland, and displaced persons in Germany and Austria. Special programs are financed for refugees in the United States, a welfare program for children, and the aged and infirm in England, a program for relief of students in Switzerland, and a rehabilitation program for 1,470 Polish refugees in Mexico.

Five projects were concluded during the year: civilian relief programs in North Africa and Malta, civilian relief for Italians in Egypt, and large programs for refugees in Portugal and Spain.

By using indigenous agencies of charity, War Relief Services has kept its administration staff at home and abroad to a minimum of 68 persons, and at least 22,000 volunteers are engaged in the work, principally abroad.

Seven gifts-in-kind campaigns were conducted during the year, with the generous cooperation of the Bishops of the United States. In October, War Relief Services began shipments to Poland. The organization started relief work in Austria in December, 1945. An extensive program is being carried out with displaced persons in Germany and Austria. This work was started in August, 1945 and will continue during 1946. A staff of over 50 persons is engaged in this work.

In addition to the figures of collections given above, 115 dioceses cooperated in the campaign of food for the War Stricken of Europe and the Far East, Dec. 9-16, 1945. A goal of 20,000,000 cans of foodstuffs was set and exceeded. The cans were gifts of members of 15,000 parishes in all parts of the country.

His Holiness Pius XII sent a special message imparting his apostolic benediction to workers in the campaign in the following words: "Receiving daily as the common father piteous appeals from every corner of the earth for help and succour, and knowing, therefore, only too well the depths and extent of the desolation caused by the war throughout the world, it is with deep consolation and with a heart overflowing with affection that we bestow our Apostolic benediction on this latest evidence of the zeal and charity of our beloved children in the United States in the Christlike efforts to bring relief in ever increasing measure to the innocent victims of the war."

ANNUAL GENERAL MEETING OF THE BISHOPS

On Nov. 14, 1945, 110 members of the Hierarchy in the United States assembled at the Catholic University in Washington, D.C. for their 1945 general meeting, and continued in session for three days. The Bishops passed a resolution on compulsory military training, asking first that our government "should explore the possibility of having military conscription abolished in all countries," but adding that if a wide extension of military training is found necessary for present adequate defense of our nation, then "(1) voluntary enlistments in the armed forces should be stimulated as much as possible, to provide our first line of defense; (2) any period of enforced training should be integrated with normal school life; and (3) the War and Navy Departments should work with recognized moral leadership to correct certain policies and attitudes which have wrought grave moral damage to great numbers of young people in the armed services during the past five years."

At the close of their meeting the Bishops issued a statement, "Between War and Peace," which was signed in their names by the Administrative Board of the National Catholic Welfare Conference. The statement called for a renewal of the ideal of peace outlined in the Atlantic Charter and expressed disappointment in the pattern for peace emerging from the conferences of the United States, Russia, and Great Britain. The Bishops asked for a sound United Nations Organization which would be not merely a virtual alliance for the great powers in the Security Council, but a sound institutional organization of the international community. They called attention to the disregard of our pledge to the Polish people, of the absorption by force of the Baltic countries, of the shocking news leaking out from Slovakia, Slovenia, Croatia, and other southeastern European countries.

The statement concluded with a prayer that God in His Blessed Providence help us to be the vigorous champion of democratic freedom and the generous friend of the needy and oppressed throughout the world.

The Bishops' meeting also reviewed reports of the various N.C.W.C. departments and elected members to the Administrative Board of the National Catholic Welfare Conference and the episcopal committees on the American Board of Catholic Missions, the Propagation of the Faith, the Confraternity of Christian Doctrine, the National Organization for Decent Literature, the North American College, and Motion Pictures.

NEW N.C.W.C. ADMINISTRATIVE BOARD

New members elected to the N.C.W.C. Board were the Most Rev. Richard J. Cushing, Archbishop of Boston, and Most Rev. John Mark Gannon, Bishop of Erie. Other members re-elected included: The Most Rev. Archbishops John J. Mitty of San Francisco, John Gregory Murray of St. Paul, Joseph F. Rummel of New Orleans, James H. Ryan of Omaha, Francis J. Spellman of New York, and Samuel A. Stritch of Chicago; and the Most Rev. Bishops Karl J. Alter of Toledo and John F. Noll of Fort Wayne.

At the meeting of the newly elected Administrative Board, following the general sessions, Archbishop Stritch was named to serve as chairman.

The report of the Executive Department to the Bishops' Meeting observed that in two important ways, the Church in the United States felt the impact of international developments: one, in the matter of relief and rehabilitation of devastated countries and their peoples, millions of whom are our brethren in the Faith: the other in the sense of responsibility for the establishment of a peace of justice and charity based on the principles laid down by our Holy Father, Pope Pius XII.

Among the variety and multiplicity of other matters in which interest of the Executive Department was enlisted during the year and on which, in some instances, appropriate enquiry and representation was made, the following are a few examples: repeated attacks from Moscow on the Vatican, the Catholic press in the United States, etc.; immigration and transportation of 40 Polish boys in India destined for seminary studies in the United States; the fate of the Church in Poland, Slovakia, and Lithuania; displaced Lithuanians in France, Ukrainians in Germany, Croatians in Italy, Slovenes in Austria; the education program of the allies in Germany; reparations for the Church in the Philippines; alleged interference with German Bishops' Meeting at Fulda; deportation of enemy aliens rounded up in Latin America and detained in the United States; the fate of Korean Catholics; international Catholic relief organization; disposal of surplus property abroad, especially where Communities of the United States have missions; alleged mistreatment of prisoners of war in the United States; and inter-American Catholic education organization.

CATHOLIC EDUCATION PROJECTS

During the year, the attention of the Department of Education was largely directed to various educational problems that are an aftermath of the war or are concerned with post-war plans for schools and colleges. The revival of the issue of Federal aid to education made this subject an important field of activity. The Department expressed opposition to the Thomas-Hill bill, which would grant aid only to public elementary and secondary schools. Testimony of the Department was offered, however, in behalf of the Mead-Aiken bill, supported by the American Federation of Labor, which would include aid in its provisions to the children of all schools, public and non-public.

Continued interest was given to the various steps that were taken in this country toward the formation of an International Office for Education. The Department participated in the many discussions that finally resulted in the London Conference on this subject.

The Department continued to cooperate with the Treasury Department in war bond and stamp sales in Catholic schools. A recent Treasury statement, cited in the report, showed more than $65,000,000 in sales in 92 dioceses during the 1944-45 school year.

ACTIVITIES OF THE CATHOLIC PRESS

Through the N.C.W.C. *News Service,* readers of the Catholic press had made available to them the most authoritative and detailed reports on the news events which centered on the Vatican, occupied close-up seats in San Francisco where a corps of correspondents and leading thinkers of a half-score of countries gave special coverage, traveled with the Allied forces as they plunged eastward to the defeat of Germany, stood close at hand for the capitulation of the Nazis and its after effects, followed events of Catholic interest as more and more of the Pacific area became liberated, and followed through the eyes and ears of experts the emergence of France from the yoke of Nazi domination.

In addition to these, the Catholic press mirrored for its readers in the last year thousands of happenings in all parts of the world that had high news importance, dramatic impact, and poignant human interest.

SOCIAL ACTION

During the year, the N.C.W.C. Department of Social Action carried on widespread activities to acquaint the nation with the undertakings of the San Francisco Conference, Dumbarton Oaks Proposals, and Bretton Woods Agreements.

Four pamphlets and six committee statements, dealing mainly with international peace, were issued by the Catholic Association for International Peace, an auxiliary of the Department, while a new edition of *Pope Pius XII and Peace* was prepared by a Department member.

A Seminar on the Spanish Speaking people of the Southwest, held in Denver, brought together priests, sisters, laymen, and laywomen from the four archdioceses of the Southwest and West. Intensive assistance to the Archbishops and Bishops of that area was given in working out a general program for the religious, social, and economic welfare of the Spanish Speaking, and the Department continues as consultant in the work.

Drafts of a program of post-war reconstruction were drawn up and discussed with heads of employers' organizations, labor officials, government representatives, and persons learned in Catholic social teaching.

The ninth Institute on Industry was held in cooperation with the National Council of Catholic Women, with a special course given to representatives of the NCCW Social Action Committee.

Besides the work done with the Spanish Speaking groups, work was done with the Negro group by assistance given to the Federated Colored Catholics in plans for its new work, attending meetings of the Interracial Council, National Council of Negro Women, and the Committee to Make Permanent the F.E.P.C., etc.

At present there are approximately 60 Catholic labor schools in operation, and plans are being made to open additional projects. Several dioceses have coordinated their work in this field under a diocesan labor institute.

Favorable progress was made in the work of the Family Life Bureau during the year, with the Family Life Conference at the Catholic University of America as its outstanding activity.

LAY ORGANIZATIONS PROGRESS

At the close of the year, the Catholic Radio Hour, produced by the National Council of Catholic Men, was being carried by 98 NBC stations in mainland United States and Hawaii. Audience mail received during the period came to 101,411 pieces. The Hour of Faith was carried by 37 ABC stations, and audience mail totaled 4,611 pieces.

During the year, N.C.C.M.'s Narberth Information Articles were published weekly, in free space, by 199 secular newspapers, having a combined circulation of more than 1,000,000. The articles were also distributed direct-by-mail, in pamphlet form, by a number of N.C.C.M. affiliates.

CATHOLIC WOMEN'S ORGANIZATIONS

In its effort to unite the Catholic

women of the United States, which was begun 25 years ago, the National Council of Catholic Women now counts a total organization of 73 diocesan councils, 19 national organizations, and seven state organizations, comprising 4,300 local societies.

The influence of this united strength has been brought to bear particularly upon the fields of International Relations, Social Action, and War Relief. Study clubs, public forums, radio addresses and lectures on the Papal Peace Program were sponsored by NCCW and participated in by women's groups throughout the country. The Council distributed 140,000 pieces of literature to acquaint the Catholic women of the nation with the need for studying the proposed world organization in the light of the Papal Peace Program, and for stimulating public discussion of these topics.

CONFRATERNITY OF CHRISTIAN DOCTRINE

Emphasis during the year in the Confraternity of Christian Doctrine was on the spiritual and technical preparation of all members of the parish C.C.D. executive boards in order that the priest directors may have informed, qualified assistants in the development of the parish program.

A National Street Preaching Institute, under the direction of the Apostolate to the non-Catholic section of the Confraternity of Christian Doctrine, was held at Our Lady of the Ozarks College, Carthage, Mo., July 5-20, 1945, with marked success. During the two weeks, 27 priests representing 10 dioceses took part in the demonstration work. There is now in preparation a *Manual of Street Preaching*.

THE EASTERN CHURCHES

By E. R. Hardy, Jr.,
Berkeley Divinity School

GREEK (HELLENIC) ORTHODOX CHURCH

In the winter of 1944-5, Archbishop Athenagoras undertook a visitation of the Greek communities in the Pacific States, which have been without episcopal supervision since the death of Bishop Eirinaios of San Francisco in May, 1944. At the same time, Bishop Gerasimos of Chicago visited the communities in the South, officiating at the blessing of the waters at Tarpon Springs, Fla., on the Feast of the Epiphany, Jan. 6, 1945. Bishop Germanos Polizoides continued to assist the Archbishop in New York, the Middle West, and the South, and Bishop Athenagoras in New England, where he heads the Seminary at Pomfret, Conn. Early in 1945, news was received of the death of Archbishop Alexander, who from 1922-1930 was the first Archbishop of the Greek Church in America; a native of Nicomedia in Asia Minor, since 1931 he had been Metropolitan of Corfu.

The Greek Church in America is divided into six districts for the promotion of its educational and missionary work—five in North America and one comprising South America. During the year, conferences were held in several of these districts for the teachers in Greek religious schools; the New England district met in Boston in February, the New York district at Astoria in March, the Western district at Sacramento, Calif., in May, the Southern district at Spartanburg, S. C., in June. It is planned to organize an Apostolate of clergy especially devoted to missionary work in each of these districts.

The Greek communities cooperated, as they have before, in the drives for War Loans, the Red Cross, and Greek War Relief, besides raising $5,000 in the annual collection at Easter for the spiritual head of their Church, the Patriarch of Constantinople. The Bishops officiated at memorial services for President Roosevelt in various Greek Churches on the Sunday after his death, and doxologies were held in the Greek Orthodox parishes for V-E and V-J Days. A prominent layman from Greece, who visited the United States in the early summer, was Prof. Hamilcar Alivisatos of the University of Athens Faculty of Theology. He spoke in the Cathedral in New York and in other Greek churches, as well as presenting the needs of the Church in Greece to the representatives of the World Council of Churches and other bodies.

RUSSIAN ORTHODOX CHURCH

The most conspicuous event in the Russian Orthodox Church was the opening of negotiations, as yet inconclusive, for the re-establishment of normal relations with the Church in Russia. Bishop Alexei, formerly of Alaska, and the Very Rev. Joseph Dzvonchik were sent as a delegation to the Sobor of the Russian Church at Moscow, but were unable to arrive until after the meeting. A Patriarchal Ukase of Feb. 16, 1945 offered terms for the reunion, which involved the holding of an American Sobor for the election of a new Metropolitan, subject to approval at Moscow, called for renunciation by the American Church of political activities against the USSR, and left uncertain the degree of autonomy which might be granted to the Church in America. These terms were rejected as unsatisfactory by the Bishops' Council at Chicago on May 22-24; an explanatory statement issued by the Metropolitan Council in July stressed the desire of the Russian Orthodox Church in America to remain an American Church; as such it is naturally nonpolitical, but can not restrict the freedom of thought and speech of its members. It may be noted that, under present conditions, there is probably more sympathy with the USSR than opposition to it in Russian parishes.

In the fall, Archbishop Alexei of Rostov and Yaroslavl arrived in America as representative of the Patriarch of Moscow and conferred with Metropolitan Theophilus and others. A second meeting of the Bishops' Council in December came to no further conclusions, and further negotiations may await the next All-American Sobor of clergy and laity. Meanwhile the old Russian Cathedral in New York, long in the hands of a schismatic group, has been handed over by its present occupier to Archbishop Alexei as representing the mother church of Russia.

The Russian Church is proud of the record of its four chaplains (three in the Army and one in the Navy), who, as the only Orthodox chaplains in the armed forces, have ministered to servicemen and women of all branches of the Orthodox Church. Three of them are recent graduates of St. Vladimir's Theological Seminary, now in New York, which celebrated in the fall the fortieth anniversary of its original foundation in Minneapolis. On Oct. 4 the Church lost one of its older leaders; Archbishop Arseny, known to a previous generation as a distinguished preacher in Russia and America, and formerly Bishop of Winnipeg and of Detroit, died at St. Tikhon's Monastery, South Canaan, Pa. An interesting episode of the summer was the restoration to the old church at Fort Ross, Calif. (now restored as a historic monument) of the bell brought by Russian settlers in 1812, and for many years used by the Petaluma Fire Department.

SERBIAN ORTHODOX CHURCHES

Bishop Dionisie of the Serbian Orthodox Church has established his official headquarters at St. Sava's Cathedral in New York. On June 10, at the first anniversary of its consecration as an Orthodox church, the mortgage on this building was burned. Bishop Irenei of Dalmatia has come to this country, and is residing at the Cathedral. During the year, the Serbian Church began the publication of a church paper in English; among the activities recorded in it is the organization at the Monastery at Libertyville, Ill., of a summer camp for children from Serbian parishes in the Chicago area.

ROMANIAN AND BULGARIAN CHURCHES

The Romanian and Bulgarian Churches in America are under temporary administrations in the absence of their Bishops in Europe—the Romanian Bishop Polycarp having been unable to return since attending the Romanian Synod in 1939, and the Bulgarian Bishop Andrei having recently left for a visit to Bulgaria. An interesting episode in November was the blessing by the Romanian priest in New York (Rev. Vasile Hategan) of an iron lung being sent to Bucharest by the National Foundation for Infantile Paralysis.

ALBANIAN PARISHES

Most of the Albanian parishes in America are now united under the jurisdiction of Bishop Fan Noli, who since his ordination in 1908 has been a leading figure in Albanian-American life, and is responsible for the translation of the Orthodox ritual into Albanian, now used in Albania as well as here. Under present conditions, the relation of the American parishes to the Albanian Synod is still unsettled.

ORTHODOX CHURCHES ABROAD

On Jan. 31 and Feb. 2, 1945, the All-Russian Sobor met for the election of a Patriarch of Moscow in succession to the late Patriarch Sergius. The Patriarchs of Antioch, Alexandria, and Jerusalem were present, also representatives of Constantinople and of the Serbian Church, making this perhaps the most widely representative assembly of the Orthodox Church since the 17th century. Metropolitan Alexei, the acting Patriarch, was unanimously elected, and was installed on the following Sunday, Feb. 4; born in 1878, he had been a teacher of theology, and since 1921 Vicar-Bishop and then Metropolitan at Leningrad. Metropolitan Benjamin, the Patriarchal Exarch for America, who took a prominent part in the Sobor, proposed that the Orthodox Church might form a central committee for its common interests. This did not meet with favor, but another proposal of general concern made at the Sobor was carried into effect; this was a formula for ending the schism which has existed between the Bulgarian and Greek Churches since 1873, on the basis that the Bulgarian Church should express regret for its breach with the Patriarchate of Constantinople, and in turn be granted the status of an autocephalous Church. This was done on Feb. 22, and the office of Bulgarian Exarch has been filled by Metropolitan Stefan of Sofia.

The Russian Church has been enabled, owing to the friendlier relations which now exist between it and the Soviet Government, to revive and reorganize many aspects of its life. Many churches and monasteries have been reopened, a Theological School has been established at Moscow, episcopal sees have been filled, and most of the leaders of the schismatic groups which broke away after the Revolution have returned to the Church. In the spring Patriarch Alexei visited the Orthodox Churches of the Levant, whose Patriarchs had come to Moscow; and in June a delegation under Metropolitan Nikolai of Krutitsk went to England, returning the visit of the Archbishop of York to the late Patriarch Sergius in 1943.

In Greece, Metropolitan Damaskinos of Athens served throughout the year in the difficult and responsible position of Regent. The Churches of Bulgaria and Romania (the latter under Patriarch Nicodim) are important factors in the reconstruction of their respective nations. In Yugoslavia, the leaders of the Church were largely adherents of the Serbian royalist party, and Patriarch Gavrilo and others are remaining abroad; but the Church is a factor of undeniable historical and social importance in Serbian life; its position under Marshal Tito's regime will probably approximate that which it now occupies in Russia. The Orthodox diocese in Carpatho-Russia, formerly attached to the Serbian Church, has now been transferred to the Russian Church, as a natural consequence of the political transfer of that area to the Soviet Union.

OTHER EASTERN CHURCHES

The Armenian Prelacy of North America was represented at the Armenian National Congress in Etchmiadzin in June by its Prelate, the Very Rev. Diran Nersoyan. Georg VI Chorekjian was elected and installed as Catholicos of All Armenians, and greeted as such by the other chief Armenian prelates (of Cilicia, Constantinople, and Jerusalem). One of his first acts was to consecrate ten new Bishops for the Armenian Church, one of them being Nersoyan, who has now returned to this country as Bishop. He is making arrangements for the supply of clergy for the Armenian parishes, and other needs of the Armenian Church.

Mar Shimun XXIII, Patriarch of the East and Catholicos of the Assyrians, celebrated his 25th anniversary in this office at Chicago on July 1. A Solemn Mass at the Assyrian Church in Chicago was followed by a dinner presided over by the pastor of the Assyrian Church in Flint, Mich. Mar Shimun is continuing his visit to the Assyrian congregations in America, and is planning for the formation of clergy in this country.

JUDAISM AND JEWISH COMMUNAL AFFAIRS

By Harry Schneiderman*
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GENERAL

The climactic events of 1945 left their impact upon the American Jewish community. With regard to the war effort, some 600,000 Jews served in the nation's armed forces, and countless others served in shops and laboratories developing and improving essential war equipment.

The collapse of Nazi Germany brought to light the full scope of the catastrophe which had befallen the Jews of Europe. Of a pre-war population of 6,000,000 in continental Europe, outside the Soviet Union, only one out of five Jews remained alive. Horrified by the revelation of Nazi atrocities, American Jews strengthened their efforts to succor the remnants of Jewish communities overseas.

Among the major problems as yet unsolved are the protection of the stateless, the repatriation of the displaced, the rehabilitation of those unwilling or unable to return to their countries of previous residence, the reuniting of families, the care of orphans, the extension of emergency relief to the proverty-stricken, and the combating of a resurgent anti-Semitism in liberated countries. A problem of particular concern is that of Jewish orphans who found shelter in non-Jewish religious institutions during the Nazi occupation.

In an attempt to alleviate the most pressing of these problems, Jewish relief agencies in the United States intensified their activities during the year, and Jewish communal organizations increased in number and membership. Jewish leaders joined with others in considering the problems of post-war reconstruction and the establishment of a just and lasting peace and submitting their conclusions to the United Nations Security Conference at San Francisco in April.

STATISTICS

Jews in the United States number approximately 4,770,000, according to the Census of Religious Bodies, 1937, based on records of Jewish Congregations, immigration data, and reports from local communities throughout the country. These reports disclose that, while Jews are widely distributed, residing in every state in the union, they are concentrated primarily in urban areas, consequently reflecting in their choice of occupation the pattern typical of urban sections of the country.

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The largest proportion of Jews lives in the northeastern section of the country; the proportional variation of Jews to total population ranges from 16.7 per cent in New York State to 0.21 per cent in North Carolina. Jews constitute 3.7 per cent of the total population of the United States and nearly 11 per cent of the population in cities of 100,000 or over.

RELIGIOUS AND EDUCATIONAL ACTIVITIES

Spurred on by the catastrophic extinction of Jewish centers of learning abroad and by the need of the American community for religious direction and informed leadership, theological seminaries intensified and expanded their programs in several directions.

The first of these programs was that initiated in February 1945 by the Jewish Theological Seminary of America (Conservative) at the instance of the Dean of its Teachers' Institute, Dr. Mordecai M. Kaplan. Broadened into a "University of Judaism," the Seminary was envisaged as a center for the training of leaders in all phases of Jewish religious, communal and cultural activity.

A similar program was launched in May by the Rabbi Isaac Elchanan Theological Seminary and Yeshivah College (Orthodox). Dr. Samuel Belkin, president of the institution, announced plans to develop a Graduate School of Community Administration and Social Research, a Graduate School of Education and a School for Adult Education. These, together with the present five schools associated in the institution, would constitute a Jewish University, the first to be established outside of Palestine. In December 1945, Yeshivah University, as the school is now known, was granted a charter by the State Board of Regents.

The Reform seminaries, Hebrew Union College and the Jewish Institute of Religion, embarked on campaigns for the enlargement of their programs.

All four seminaries inaugurated special facilities for rabbinic schooling for students from Latin America, where growing communities are turning increasingly to the United States for guidance in ordering their religious and social affairs.

CONSERVATIVE JUDAISM

The three principal bodies of Conservative Judaism—the United Synagogue, Jewish Theological Seminary, and Rabbinical Assembly—worked in closer unison during the year than ever before by instituting a joint fund-raising campaign and by setting up a liaison committee of the heads of these three organizations to cooperate in program planning. Plans have been made to expand the Joint Commission on Jewish Education into a Department of Education, with a permanent educational director and a staff and budget to enable it to produce texts and other educational materials needed in Conservative religious schools. Preliminary steps were taken to create a Rabbinical Pension Fund.

The text of a Sabbath and Festival Prayer Book was completed by the Joint Prayer Book Commission. A Metropolitan Council of the United Synagogue was established in the New York area for the purpose of developing a program for the diversified religious activities of young people and adults, and especially for veterans.

The Women's League of the United Synagogue of America also centered its program on the needs of the returning veteran. The National Federation of Jewish Men's Clubs, which reported a growth of almost 100 per cent during the year, organized new regional groups in New York and Boston, in addition to those already existing in Philadelphia and Pittsburgh. A highly significant project undertaken by this group was the National Layman's Institute, the second session of which was held June 19-24, 1945. Here some 50 laymen met for a concentrated period of Jewish study and training for leadership in the Jewish community.

The Jewish Theological Seminary of America presented a series of coast-to-coast radio programs under the general title "The Eternal Light," comprising dramatic presentations of the history of noted synagogues and biographies of outstanding Jews. The Institute for Religious Studies, established at the Seminary in 1938 for ministers and theological students of all faiths, to examine the "common background of all western religions and the problems facing the leaders in all phases of community life," opened another branch in Boston on Jan. 19, 1945.

The Jewish Reconstructionist Foundation whose purpose is the advancement of Judaism as a religious civilization celebrated the tenth anniversary of its periodical, *The Reconstructionist,* in February 1945, with a dinner to the founder of the movement, Dr. Mordecai M. Kaplan. The Foundation published its own Sabbath Prayer Book and issued a variety of pamphlets for use by study groups and a musical cantata. The Reconstructionist Fellowship, organized in January 1944 to bring together leaders and members of study groups throughout the country, held its second meeting on Feb. 22, 1945.

The Social Justice Committee of the Rabbinical Assembly of America went on record in June 1945, at hearings before the House Military Affairs Committee, as opposing enactment during the war of legislation requiring peacetime conscription and military training.

ORTHODOX JUDAISM

In a move to meet the special religious needs of Jews surviving the Nazi holocaust in Europe, the Union of Orthodox Rabbis of the United States and Canada inaugurated an Emergency Religious Relief and Rehabilitation Department with these aims: to rescue Jewish orphans and refugee children; to repair and reconstruct houses of worship; to restore Jewish cemeteries; to rebuild and reorganize parochial schools; to reunite separated families; to restore Jewish communal institutions and reorganize communal supervision of dietary observances; to provide Torah scrolls, prayer books, and ritual objects; to send American Orthodox Rabbis to Europe on "field duty"; and to convene a world congress of rabbis to consider these and similar problems and effect a permanent international rabbinic organization to further Jewish religious interests. In May, the Union launched a campaign to implement this extensive program.

Among the new projects initiated by the Union of Orthodox Jewish Congregations of America is the Orthodox Union Veterans' Council which is designed to advise congregations on on how to carry out a five-point program for veteran rehabilitation through the synagogue.

In the Southeast a new religious organization made its appearance. The Southeastern Synagogue Conference, comprising 15 orthodox congregations in Alabama, Georgia, Florida, and Tennessee, a women's division, and a Rabbinical Authority Committee, was formally inaugurated with the adoption of by-laws, at a meeting in Birmingham, Alabama, Feb. 2-4. The expressed purpose of the group is to "strengthen traditional Judaism in the Southeast."

Expansion was also the keynote of the year's activity in the Sephardic Community. The Central Sephardic Jewish Community of America announced on March 27 the formation of a "World Federation of Sephardic Communities," with headquarters in New York City. The purpose of this new body is to intensify active participation of Sephardic Jews in world Jewish affairs, and to coordinate their religious, cultural, educational, and economic efforts.

REFORM JUDAISM

The Reform group continued to be troubled by internal dissension over its relation to the Zionist movement and to the "nationalist" ideology. Several congregations sharply criticized the Union of American Hebrew Congregations and the Central Conference of American Rabbis for retreating from their former anti-Zionist attitude, and continued to demand the withdrawal of these bodies from the pro-Zionist American Jewish Conference. The Union, however, rejected such criticism as unjustified, and declined to submit to these demands, at the same time emphasizing its neutrality on the moot issue of a Jewish commonwealth in Palestine.

The Union of American Hebrew Congregations inaugurated a program of Interfaith Institutes on Judaism, in cooperation with the Central Conference of American Rabbis. Organized in local communities for ministers of all faiths, these institutes were planned to acquaint religious leaders with the beliefs, practices, and history of Judaism, and to emphasize the common origins and ideals inherent in both Judaism and Christianity. Branches were established in 83 congregations, and more than 2,500 adult students were enrolled in courses in Jewish history, religion, literature, and present-day problems.

The Central Conference of American Rabbis issued a newly revised edition of the *Union Prayer Book,* Volume Two, which contains the services for the High Holidays. On the occasion of Race Relations Week, the Commission on Justice and Peace of the Central Conference of American Rabbis issued a proclamation expressing the sense of brotherhood of all Jews with members of all races and pledging to the colored races support in their struggle "for the equality which is their right in all spheres of human endeavor." A number of Reform congregations invited Negro preachers to occupy their pulpits on the Sabbath preceding Lincoln's Birthday.

UNITED ACTION

The Synagogue Council of America, comprising lay and rabbinic representatives of all three Jewish religious groups, advised all congregations in the country to hold special services of mourning during the week following the tragic death of President Roosevelt on April 12, 1945, and again in celebration of the announcements of victory in Europe and in the Pacific.

The Synagogue Council adopted a positive role in connection with the San Francisco Conference. In a memorandum to the United States Delegation it recommended practical steps for the achievement of an international bill of rights, justice to the Jews, the outlawing of racial and religious incitement, and universal disarmament.

Another project of the Council was the creation of a special committee on the Synagogue and Labor, headed by William B. Herlands, former Commissioner of Investigations of New York City. This committee will work for the improvement of relations between organized labor and Jewish religious institutions, and will formulate specific projects whereby religion and labor can cooperate "to promote economic, social and political democracy and to deepen the religious spirit among working men."

COMMUNITY ORGANIZATION

Increased national income, general employment plus wartime restrictions on consumption, and favorable tax exemptions were factors conducive to increased generosity in philanthropic contributions for wartime and continuing welfare needs. The American Red Cross reached higher goals in 1944 and 1945; the National War Fund, which included the USO and overseas relief, and local community and war chests continued to raise large sums. Twenty-two Jewish welfare funds were included in war chests, the same number as in previous years.

There has been a continued strengthening of local organizations for common Jewish purposes and activities. Federations, welfare funds, and community councils have demonstrated their essential value in developing cooperation among the varied Jewish groups. At present, there are 268 Jewish national organizations, which may be classified as religious (exclusive of congregational membership), fraternal, philanthropic and welfare, Zionist and pro-Palestine, educational and cultural, defense, professional, war veterans, and a variety of others.

Changing social and educational factors in American life, added to the sharp reduction in new immigration, are bringing about a greater homogeneity, especially in the smaller communities, and the Jewish population is becoming preponderantly native-born in the adult as well as the youth groups. While cultural and religious differences remain, differences arising out of variations in national origin and economic classes are constantly being attenuated.

WELFARE

The interest in serving the Jewish community and the need for developing programs and agencies geared to current conditions stimulated the raising of capital funds in large and intermediate-sized cities. These funds are intended primarily to furnish, improve, and extend adequate medical and health services; provide for the care of the aged and the chronically ill; and establish centers for the development of Jewish education, culture, and recreation. In some of the more advanced communities, casework services formerly limited to marginal groups are being made available to the whole Jewish population. One aspect of this development was the beginning of a fee service for economically self-sustaining families by agencies such as the New York Jewish Social Service Association, which formerly dealt principally with the economically dependent group.

NATIONAL EFFORTS

Efforts to counteract discrimination in employment were carried on cooperatively during this period by the Coordinating Committee of Jewish Organizations Dealing with Employment Discrimination in War Activities, a project for national and local cooperation, sponsored by the Jewish Occupational Council. This effort resulted in securing support from all major Jewish agencies for the Fair Employment Practices Commission established as a Federal war-time measure. There was general agreement that the FEPC should become a permanent function of the Government in the post-war period. There has been similar agreement and support of the Ives-Quinn Bill enacted into law by the New York State Legislature, which outlaws discrimination in employment on account of race, color, or creed. The Coordinating Committee has been absorbed as a regular function of the National Community Relations Advisory Council, a group set up for the coordination of the work of national and local Jewish agencies engaged in community relations activities.

The Council of Jewish Federations and Welfare Funds, the Jewish Welfare Board, the Jewish Occupational Council, and the American Association for Jewish Education all expanded their programs during the year. The JWB continued its large-scale program of service to veterans directly and through the United Service Organizations, in addition to its regular program of service to its cultural-recreational member agencies. Through its Bureau of War Records it made progress in compiling the record of Jewish contribution to the war effort.

CONTRIBUTION TO THE WAR EFFORT

The Jewish Welfare Board, an agency whose major concern in recent years has been the wartime needs of men and women in the armed forces, continued to minister to the cultural, educational, religious and recreational needs of the fighting men. Its representatives worked along with chaplains on battlefronts, in rear sectors, and in every part of the world where soldiers and sailors lived and fought.

The Bureau of War Records of the JWB is at present attempting to ascertain the number and ratio of Jewish men and women in the United States armed forces and the current figures on casualties and awards. On December 1945, incomplete data already collected by the Bureau indicated that some 600,000 Jewish men and women served in the armed forces.

In addition to this number, which would be sufficient to man 40 divisions, more than 50 per cent of the American rabbinate volunteered for the chaplaincy, with half of their number serving overseas. One third of the Jewish physicians of all ages were in uniform; 60 per cent of those under 45 were in the armed forces. Combat casualties among Jewish men and women numbered 22,042, while 29,004 awards were received by some 15,000 Jewish soldiers and sailors. One received the highest award of the nation, the Congressional Medal of Honor, and 76 earned the second highest award, the Army Distinguished Service Cross and the Navy Cross.

On the basis of initial returns in June 1945 from 17 Jewish Communities, it was disclosed that 34 per cent of the male refugees in the 18-44 age group were in military service. This is identical with the corresponding proportion of service men in the age group for the general male population of the country.

VETERANS SERVICE PROGRAMS

As an accredited agency of the Veterans Administration, the Jewish Welfare Board has long maintained direct services to veterans in hospitals and in dealing with their personal and family problems, including assistance in furthering claims for governmental benefits. The JWB has developed and is implementing a program for assisting returning servicemen in their readjustment through the JWB directly, through Jewish community centers, and through veterans service committees organized in local communities. The program sponsored by the JWB is for both disabled and able-bodied veterans. For disabled veterans the Board carries on a national program under its own direction; for able-bodied veterans it serves primarily to stimulate and coordinate local community organizations for veterans programs. The JWB has helped to organize local veterans service committees in 50 of the largest Jewish communities throughout the country. It is also represented on the National Committee on Service to Veterans which was formed, under the auspices of the National Social Work Council, to coordinate the planning of non-governmental national welfare agencies dealing specifically with the able-bodied ex-service group.

INTERFAITH ACTIVITY

Jewish groups have always welcomed united action on the part of all religious faiths for the attainment of a common goal, the welfare of the entire community. During the year, Jewish, Catholic and Protestant leaders attempted in various ways to point up the dangers of intolerance in this country, and have warned of a post-war emergence of anti-Semitism, anti-Catholicism, and anti-Protestantism.

The year's outstanding manifestation of interfaith unity was the unanimous demand of the Protestant, Catholic, and Jewish faiths for incorporation of a human rights provision in the United Nations Charter. Undoubtedly one of the most impressive gestures ever made by the interfaith movement in America was its insistence that the Charter contain an International Bill of Rights and provide for a commission "to protect and further the rights and liberties of the individual, and of racial, religious, and cultural groups, especially those uprooted by war or oppression."

A study prepared by the interfaith committee in April 1945 listed these demands among ten recommendations urged upon the San Francisco Conference. Bases for the study included the Pattern of Peace issued by 146 leaders of the three major faiths in October 1943, and more recent statements of the Roman Catholic hierarchy, the Federal Council of Churches of Christ in America, the Synagogue Council of America, and the Cleveland Church Study Conference on a just and durable peace.

The Conference adopted the interfaith recommendation and wrote into its charter the provision that "the Economic and Social Council shall set up a commission for the promotion of human rights."

Alive to the problem of post-war employment discrimination, religious leaders continued during the year to make strong appeals for Federal legislation to set up a permanent Fair Employment Practices Commission. Passage by the New York State Legislature of the Ives-Quinn bill to outlaw discrimination in employment was hailed as a victory for representatives of the three faiths who had helped bring about its enactment. This was believed to be the first time in the legislative history of New York State that Protestant, Catholic and Jewish groups had unanimously backed a bill.

The National Conference of Christians and Jews reported the extension of its educational program into new regions and cities and intensified work in schools, colleges, churches, civic agencies, and military training camps. The Conference now has about 300 Round Tables, which function throughout the year, and special committees in about 3,000 communities, which function during Brotherhood Week, Religious Book Week, and on other occasions.

Growth of the Interfaith movement during the year was marked by the formation in April 1945 of the Newark (N. J.) Council for Inter-Group Action to coordinate the activities of several goodwill organizations, and the establishment in September of the Trenton (N. J.) Committee for Interracial Unity, which will cooperate in promoting better relations among all minority religions and racial groups.

GROUP TENSIONS

Immediately after the cessation of hostilities, disruptive American groups, which had agitated for anti-Semitic measures before the war, emerged from temporary hiding to resume divisive and bigoted programs. An attempt to coordinate these groups was made by former Senator Robert R. Reynolds who, in January 1945, established an American Nationalist Party. Organized on the basis of secret units or cells of ten members, it was reminiscent of the Nazi party in its infancy. Despite strenuous efforts on the part of anti-Semitic leaders to swell the membership of the Party, opposition was strong enough to cause dissolution of the American Nationalist Party in September of the same year.

Several of Reynolds' "lieutenants" in the political venture continued, after the dissolution of the party, to agitate in their own groups. Gerald L. K. Smith divided his rabble-rousing among several organizations keyed to attract such specific groups as veterans and youth.

The so-called "mothers" groups continued to propagate anti-Semitic doctrines, concentrating on mothers who had lost sons in the service. The Ku Klux Klan reappeared on the scene with new plans for dividing the country into antagonistic groups. Several individuals in the public eye fomented during the year, in their speeches and writings, anti-Jewish sentiment.

COUNTERACTION TO BIGOTRY

Recent studies of attitudes toward minority groups in America reveal a heightening of all forms of racial tension. Recognizing that the economic and social dislocations of the wartime period are continuing in the post-war world, many organizations have embarked upon programs to eliminate or alleviate group antagonisms. More and more, government, labor, industrial, educational, women's and religious groups have introduced programs for the eradication of anti-Semitism and other expressions of intolerance.

JEWISH GROUPS

Jewish groups, whose function is the safeguarding of civil rights of members of that faith, continued their unremitting opposition to all forms of anti-Semitism. A noteworthy innovation to the work of counteracting anti-Semitism is the trend toward scientific analysis of the causes of prejudice. The American Jewish Committee, organized in 1906, has set up a Scientific Research Department in the field of anti-Semitism, whose purpose is to test and analyze methods of combating prejudice in order to determine the most effective weapons against anti-Jewish activities. The American Jewish Congress, organized in 1922, created a Commission on Community Interrelations whose function is to ascertain the basic causes of anti-Semitism in real life situations and to suggest methods for their eradication.

The Anti-Defamation League of the B'nai B'rith, which for over 30 years has been working to eliminate defamation of Jews, during the year carried out its program through a speakers' bureau, books and pamphlets, radio broadcasts, and in cooperation with communities and civic groups. It also turned its attention to cooperation with labor groups and to discrimination in schools and employment.

The Jewish Labor Committee is concentrating its efforts in the fight against anti-Semitism among American workers, and is cooperating with the CIO and AFL in the sponsorship of anti-discrimination legislation.

COMMUNITY EFFORTS

During the war many communities felt the need for organized efforts to relieve antagonisms which arose among citizens of differing racial and religious strains. Mayors' and governors' committees to study group prejudices and to foster good will and cooperation have been set up in defense production centers and areas of mixed racial groups. Other citizens concerned with the preservation of the democratic American tradition have organized professional, civic, or social groups to deal with similar problems. Among such organizations the most recent are the Council for Civic Unity of San Francisco; the Independent Citizens Committee of the Arts, Sciences and Professions, with headquarters in New York City; and the League for National Unity in New York City.

USE OF THE PRINTED WORD

Members of the New York State Publishers Association, on Jan. 23, 1945, pledged the use of newspaper resources to improve racial and religious relations. A program adopted at the Association's annual meeting included the fight against bigotry as one of its aims. In support of this aim, *The New York Times* refused to accept an advertisement containing the words "selected clientele," and was upheld by a New York State Supreme Court decision which ruled that the use of the two words was an indirect means to hide discrimination.

The John C. Winston Co. announced early in 1945 a decision to eliminate all "name-calling" words from its dictionaries, in the belief that words of questionable usage contribute to the perpetuation of racial, religious and ethnic antipathies.

OVERSEAS RELIEF AND REHABILITATION

Jewish agencies throughout the world accelerated their programs for the relief of the destitute Jews in Europe. American Jewish relief groups cooperated with government agencies, private relief organizations of other faiths, and the International Red Cross in their tremendous program of relief and rehabilitation.

The United Jewish Appeal was reconstituted to continue its work of the past seven years as the single fund-raising instrument for the support of the overseas relief program of the Joint Distribution Committee, the Palestine settlement projects of the constituent organizations of the United Palestine Appeal, and the refugee adjustment program in the United States of the National Refugee Service. American Jews rallied speedily to the cause of European aid, and by June 15 the United Jewish Appeal had received, as a result of pledges made for the year 1944, the unprecedented sum of $25,108,091.90 in contributions.

The increasing gravity of the situation of the stateless and displaced Jews, many of whom are still living in internment camps, necessitated an expansion of the activities of the three beneficiaries of the United Jewish Appeal as the year drew to a close. In October the three national chairmen of the U.J.A. called upon American communities to make an unprecedented effort "to avert tragic suffering and despair among those who have survived the cruelest persecution in the history of mankind."

The program of the Joint Distribution Committee, largest overseas relief organization of American Jews, concerned itself immediately after the liberation of the European countries with emergency needs for food, clothing, and medical supplies. For the first five months of 1945, the sum of $11,884,000, exceeding the entire expenditures for 1943 and more than half the total for 1944, was appropriated for this work. A major project of the J.D.C. was the setting up of homes for thousands of orphaned children, many of whom had been sheltered in Christian homes or convents.

By October 1945, the J.D.C. had 35 welfare workers operating in the former concentration camps in Germany in the American and British zones, and ten more were being added to the staff. The J.D.C. is shipping supplies also to Jewish survivors in Poland, France, Italy, Rumania, Hungary, and Bulgaria. In the Orient, provision was made for the relief of 12,000 refugees in Shanghai who were freed from Japanese rule. In the ten-month period ended April 30, 1945 the J.D.C. allocated $1,293,145 for the rescue and transportation of Jewish refugees to Palestine.

The rising influx of refugees has increased the demands upon the United Palestine Appeal, whose funds contribute to the support of the work of the Jewish Agency in Palestine, and its most pressing concerns now are housing, medical care, training, transportation, and expansion of 300 existing agricultural centers.

The National Refugee Service is increasing its assistance to refugees in the United States formerly employed in defense work. It also is assuming the major responsibility for the 923 refugees released from the emergency shelter in Oswego, N. Y.

In the months following V-E day new problems arose that called for an even wider extension of the services of the Hebrew Sheltering and Immigrant Aid Society of America (HIAS), which for over a generation has been working in the field of immigrant and emigrant aid. Victory in Europe brought a flood of new inquiries from relatives anxious to help their kin. HIAS has been called upon to serve and assist in the preparation of sponsor-affidavits on behalf of refugees residing in France, Belgium, Italy, and other countries. After the Nazi collapse, HIAS, in conjunction with the Jewish Colonization Association, opened nine offices in France to serve refugees with greater efficiency at points where they concentrated. Food parcels are sent to France by American relatives of the refugees there. Under United States government license, HIAS acts as forwarding agent for American residents to send financial assistance to Switzerland and Rumania, an extension of the money-forwarding services of HIAS during the war.

The American ORT Federation, principal fund-raising agent of the World ORT Union for rehabilitation through vocational training, adopted for 1945 a budget of $1,550,000. ORT work in Europe during the year concentrated on re-establishing its program of vocational training. In seven principal French cities, courses were introduced for the training of men, women, and children in such trades as radio mechanics, dressmaking, applied chemistry, beauty culture, machine assembly, millinery and tailoring. In addition, the ORT re-established its agricultural program, with four separate projects in various sections of France. An important phase of ORT work has been the supplying of tools for those who are trained to do useful work but lack the equipment. In Switzerland ORT has more than 100 training units functioning, including more than 30 different trades.

The American OSE Committee, a Jewish health agency, during the year was able to start health services in the devastated European countries by sending medical teams of physicians, nurses, and welfare personnel to Rumania, Yugoslavia, Bulgaria, and Czechoslovakia, and by shipping to needy areas quantities of medical supplies and equipment. Besides administering first aid, these medical teams also carry on surveys of health conditions and of possibilities for assistance and relief.

PROPOSALS FOR RESCUE

Efforts to save the Jews of Europe from starvation and disease received a sudden jolt when the report of Earl C. Harrison, American representative on the Intergovernmental Committee on Refugees, was made public in September. The Harrison report criticized the United States military government's administration of displaced persons' camps, charging that "as matters now stand we appear to be treating the Jews as the Nazis treated them except that we do not exterminate them." Harrison recommended several measures for the alleviation of conditions, particularly the opening of Palestine to displaced Jews and the admission to this country under existing immigration laws of a "reasonable" number of these Jews.

Calling attention to the Harrison report, President Truman directed General Eisenhower to remedy conditions affecting displaced persons in the American zone of Germany and Austria. Subsequently, General Eisenhower assured the President that efforts had been made to improve the conditions of the displaced persons.

At the same time President Truman called the attention of British Prime Minister Clement Attlee to Harrison's report, and recommended that 100,000 certificates be granted for the immigration of German and Austrian Jews into Palestine. Reaction among Jewish groups to the President's suggestion was divided. Zionist groups felt that it was an evasion of the basic issue of a Jewish commonwealth in Palestine. Representatives of the American Jewish Committee expressed their approval and support of the plan.

Later in the year the American Jewish Committee wrote to Secretary of State James F. Byrnes, demonstrating the feasibility of issuing a greater number of United States visas to stateless and unrepatriable European Jews. Shortly thereafter, on Dec. 22, President Truman issued a special directive to the Secretaries of State and War, the Attorney General, the War Shipping Administrator, the Director General of UNRRA, and the Surgeon General of the Public Health Service, ordering them to mobilize their various departments and agencies to facilitate immigration into the United States at the maximum rate of 3,900 persons (of all faiths) a month.

President Truman also authorized the entry into this country, under the existing quota, of the 923 refugees living at the Fort Ontario Emergency Refugee Shelter since August 1944.

WAR REFUGEE BOARD

The War Refugee Board, which served, in rescue activities, as intermediary between the Government and Jewish agencies, terminated its activities on Sept. 15. William O'Dwyer, now Mayor of New York City, last director of the Board, made public a 74-page report of its activities on Sept. 30 and urged that the United States Government work towards a United Nations solution of the "international humanitarian problem" of finding permanent homes for the non-repatriable displaced persons of Europe. Citing instances of the Board's rescue activities, Mayor O'Dwyer declared that hundreds of thousands of persons were able to live and resist the Nazis in Europe because of the work of the War Refugee Board, established in January 1944.

WAR CRIMES

Throughout the year evidence of the horrible fate suffered by Jews and other anti-Nazis in Europe continued to pile up. In this country private citizens and Congressmen urged that crimes committed against Jews in Europe be punished as war crimes. A resolution was introduced in Congress proposing the appointment of a commission to cooperate with the War Crimes Commission in preparing definite plans for punishment of Axis criminals. Several major Jewish organizations testified in favor of the resolution.

The Jewish community followed with interest the decisions arrived at in Potsdam and made public in Washington on Aug. 2, which reaffirmed the intention of the United States, Great Britain, and the Soviet Union "to bring war criminals to a swift and sure justice." Under the Constitution of the International Military Tribunal anti-Jewish persecution or any crime committed in Axis countries against Jews before and during the war come within the jurisdiction of the Tribunal. American Jews were gratified to learn that.

PALESTINE

President Roosevelt's unequivocal stand in favor of a Jewish commonwealth in Palestine, as expressed in his statement to the Z.O.A. convention in October 1944, had aroused the hopes of Zionists that at last cognizance would be taken of Zionist demands and a definite solution proposed by the Great Powers. Prior to the Yalta Conference in February 1945, the Zionist Organization of America, the American Jewish Conference, the American Jewish Committee, and the American Palestine Committee (Senator Robert F. Wagner, chairman) addressed appeals to the President to place the Palestine question on the agenda. In his March 1, 1945 report to a joint session of Congress on the Big Three Conference at Yalta, President Roosevelt revealed that he had discussed the Arab-Jewish question during talks in Cairo with King Ibn Saud of Saudi Arabia.

When it was announced that the United Nations conference would be held at San Francisco, beginning on April 25, 1945, there was a demand from non-Jewish as well as Jewish sources that the Jewish people be given representation at the Conference, and that Jewish problems generally, and that of a Jewish home in particular, be placed on the agenda. Many public meetings were held, the largest on April 29 at the Lewisohn Stadium in New York City, where some 35,000 persons heard speakers plead for a hearing of the Jewish case at San Francisco, for immediate opening of the gates of Palestine to the Jewish survivors of the war and Nazi atrocities, and the reconstitution of Palestine as a free and democratic Jewish commonwealth.

Although the State Department included the American Jewish Committee and the American Jewish Conference among the 42 organizations invited to send representative consultants to the American delegates at San Francisco, the Jews were not given representation at the Conference, nor was the problem of Palestine placed on the agenda. The Arab states, which had entered the war on the side of the United Nations at the last moment and were opposed to Zionist demands, were given official representation at San Francisco. These facts caused great disappointment in many Jewish circles.

Many of the Jewish groups submitted demands and declarations to delegates of the United Nations. Representatives of the Jewish Agency for Palestine, presented a memorandum which asked that no action be taken at the San Francisco Conference which would be inconsistent with or prejudicial to the special rights of the Jewish people under the Balfour Declaration and the Palestine Mandate, and that such rights be expressly reserved and safeguarded. This recommendation was endorsed by the American Jewish Committee and other organizations. In advance of the San Francisco Conference, on April 2, 1945, the American Jewish Conference submitted a memorandum to Secretary of State Stettinius "on the needs and aspirations of the Jewish people at the present time and on the post-war world." The Palestine section called for the immediate opening of the gates of Palestine to Jewish immigration and the constitution of Palestine as a Jewish commonwealth.

The American Jewish Committee presented its recommendations in a volume titled *To the Counsellors of Peace*. With regard to Palestine the Committee reaffirmed its previous stand favoring an international trusteeship, responsible to the United Nations, in order "to safeguard the Jewish settlement in and the Jewish immigration into Palestine, to guarantee adequate scope for future growth and development to the full extent of the economic absorptive capacity of the country," and "to prepare the country to become, within a reasonable period of years, a self-governing commonwealth under a constitution and a bill of rights that will safeguard and protect these purposes and basic rights for all."

The Jewish Labor Committee, the Synagogue Council of America, the Hebrew Committee of National Liberation and the American Council for Judaism each submitted memoranda in support of its own program of action; all urged immediate immigration into Palestine of European Jews. President Truman in August revealed that, at the Big Three Conference in Potsdam, he had advocated free and open settlement of Palestine by Jews to the point consistent with the maintenance of civil peace. The President also stated that the matter of a Jewish state would have to be worked out with the British and the Arabs.

In September, the President received delegations of the American Zionist Emergency Council and the American Jewish Committee on the Palestine question. Public demonstrations, urging the British Government to permit free immigration into Palestine, were frequent. On Sept. 30, some 50,000 people attended a protest meeting against stoppage of Jewish immigration into Palestine in Madison Square Garden in New York City. On Oct. 24, an open air demonstration at Madison Square in New York City was attended by 250,000 people who adopted a resolution supporting the Jews in Palestine in their struggle "to rebuild the national life of the Jewish people" and condemning the British policy on Palestine.

A joint resolution was introduced in both Houses of Congress the last week in October calling for unlimited immigration to Palestine and for recognition of Palestine as a free and democratic commonwealth.

Efforts by Zionist groups to bring about a change in British policy towards Palestine continued to be unsuccessful as the year drew to a close and the quota of 75,000 immigration certificates allowed under the 1939 White Paper reached its limit. A joint Anglo-American Inquiry Commission was set up in November to investigate the problem of European Jews and to review the Palestine situation.

Despite the obstacles besetting their program of action, American Zionists continued planning for the resettlement of Palestine. The annual Conference for Palestine, held on Jan. 28, 1945, adopted a budget of $35,300,000 for the United Palestine Appeal and called upon American Jews to support a plan for resettlement in Palestine of 1,000,000 Jewish refugees within two years after the war. Other Zionist groups raised funds for the support of schools, hospitals, and children's settlements within Palestine.

RESTORATION OF RIGHTS

In December 1944, the American Jewish Committee proposed a six-point International Bill of Rights "to serve as a post-war guarantee of individual liberties throughout the world." The full proposals of the American Jewish Committee laid chief emphasis on the establishment of three commissions to be part of the world organization: commission on human rights, commission on statelessness, and commission on migration.

Other Jewish organizations concerned with the homelessness of the Jews in Europe made representation to European governments asking that property confiscated or stolen from Jews be returned to them. The Jewish Labor Committee, on Aug. 24, submitted to Georges Bidault, French Foreign Minister, a memorandum proposing that all Jews who lived or worked in France before the war should be assured, irrespective of their national origin, "of the right to live and work in the new French Republic," and that foreign Jews who were deported from France and found in concentration camps should be given the opportunity to return to France.

Representatives of the American Jewish Conference and the American Jewish Committee were accredited to

UNRRA to assist in developing legal procedure in connection with identification of displaced persons, to determine facts relative to resettlement and repatriation in various countries, to assist in clarifying the legal aspects of claims for restitution of confiscated property and to restore the morale of Jewish displaced persons. Other Jewish organizations sent teams of social workers to aid displaced persons in other ways.

POST-WAR PLANS

The major task of Jewish organizations during the year was the formulation of post-war plans; these were crystallized in programs presented at the United Nations Conference in San Francisco in April 1945. Forty-two national organizations, including the American Jewish Committee and the American Jewish Conference, were invited to designate one representative and two assistants each to serve as consultants and associate consultants to the American delegation at San Francisco. That section of the charter of the UNCIO which states that the United Nations shall promote human rights and fundamental freedoms for all was regarded by all organizations who had urged its inclusion as a major step in the direction of world peace.

PERIODICAL PUBLICATIONS

Advance (Congregational)
14 Beacon Street, Boston.
America (Jesuit)
329 W. 108th St., New York City.
American Hebrew
48 West 48th Street, New York City.
Catholic World
401 West 59th Street, New York City.
Christendom
297 Fourth Ave., New York City.
Christian Advocate
740 North Rush St., Chicago.
Christian Century
95 Madison Ave., New York City.
Christian Herald
419 Fourth Ave., New York City.
Christian Leader (Universalist)
16 Beacon Street, Boston.
Churchman, The (P.E.)
425 Fourth Ave., New York City.
Church Management
1900 Euclid Ave., Cleveland, O.
Commonweal, The (R.C.)
386 Fourth Ave., New York City.
Contemporary Jewish Record
386 Fourth Ave., New York City.
International Journal of Religious Education
203 N. Wabash Ave., Chicago.
Living Church (P.E.)
744 North Fourth Street, Milwaukee, Wis.
Presbyterian Tribune
Martin Bldg., Utica, New York.
Reconstructionist, The
15 West 86th Street, New York City.
Religious Digest
234 Pearl St., N.W., Grand Rapids, Mich.
Watchman-Examiner, The (Baptist)
23 East 26th Street, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

NATIONAL CHURCHES

AMERICAN BAPTIST HISTORICAL SOCIETY, Chester, Pa.
AMERICAN UNITARIAN ASSN., 25 Beacon St., Boston, Mass.
BOARD OF DIRECTION OF THE GENERAL SYNOD OF THE REFORMED CHURCH IN AMERICA, 156 Fifth Ave., New York City.
CHRISTIAN SCIENCE CHURCH READING

Room, 537 Fifth Ave., New York City.

Congregational Christian General Council, 287 Fourth Ave., New York City.

Freethinkers' of America, Inc., 370 W. 35th St., New York City.

Friends' General Conference of the Religious Society of Friends, 1515 Cherry St., Philadelphia, Pa.

General Conference of Seventh-Day Adventists, 6840 Eastern Ave., N.W., Takoma Park, Washington, D. C.

General Council of the Presbyterian Church in the U. S. A., 156 Fifth Ave., New York City.

Greek Orthodox Church, 10 E. 79th St., New York City.

National Lutheran Council in America, 231 Madison Ave., New York City.

National Spiritualist Assn., 600 Penn. Ave., S.E., Washington, D. C.

Northern Baptist Convention, 152 Madison Ave., New York City.

Protestant Episcopal Church, 281 Fourth Ave., New York City.

Society for Ethical Culture of New York, 2 W. 64th St., New York City.

Theosophical Society in America, Covina, Calif.

Union of American Hebrew Congregations, 32 W. 6th St., Cincinnati, Ohio.

Union of Orthodox Jewish Congregations of America, 305 Broadway, New York City.

United Lutheran Church in America, 231 Madison Ave., New York City.

United Synagogues of America, Broadway and 122nd St., New York City.

Universalist General Convention, Inc., 16 Beacon St., Boston, Mass.

Vedanta Society, 34 W. 71st St., New York City.

Volunteers of America, 34 W. 28th St., New York City.

INTERNATIONAL ORGANIZATIONS

Association for the Promotion of Christian Unity, Mission Bldg., Indianapolis, Ind.

Baptist World Alliance, Bates College, Lewiston, Me.

Central Bureau of Evangelical Churches in Europe, 297 Fourth Ave., New York City.

Committee on Friendly Relations Among Foreign Students, 347 Madison Ave., New York City.

Ecumenical Methodist Conference, 720 Omaha Bank Bldg., Omaha, Neb.

International Assn. of Daily Vacation Bible Schools, 297 Fourth Ave., New York City.

International Association for the Promotion of Liberal Christianity and Religious Freedom, 25 Beacon St., Boston, Mass.

International Congregational Council, 287 Fourth Ave., New York City.

International Council of Religious Education, 203 N. Wabash Ave., Chicago, Ill.

Lutheran World Convention, 231 Madison Ave., New York City.

Near East College Association, Inc., 50 West 50th St., New York City.

Religious Educational Association, 59 E. Van Buren St., Chicago, Ill.

Universal Christian Council on Life and Work, 297 Fourth Ave., New York City.

Western Section of Alliance of Reformed Churches Throughout the World Holding the Presbyterian System, 226 W. Mowry St., Chester, Pa.

World Conference for International Peace Through Religion, 70 Fifth Ave., New York City.

World Student Christian Federation, 347 Madison Ave., New York City.

World's Sunday School Assn., 156 Fifth Ave., New York City.

INTERCHURCH ORGANIZATIONS

American Bible Society, Park Ave. and 57th St., New York City.

American Sunday School Union, 1816 Chestnut St., Philadelphia, Pa.

American Tract Society, 21 W. 46th St., New York City.

Chaplain's Aid Assn., 10 E. 52nd St., New York City.

Church Peace Union, 70 Fifth Ave., New York City.

Community Church Workers of U. S. A., 77 W. Washington St., Chicago, Ill.

Conference of Theological Seminaries and Colleges in the U. S. A. and Canada, Gettysburg, Pa.

Epworth League of the Methodist Episcopal Church, 740 Rush St., Chicago, Ill.

Federal Council of the Churches of Christ in America, 297 Fourth Ave., New York City.

Fellowship of Christian Co-operation, 2929 Broadway, New York City.

Free Church of America, 25 Beacon St., Boston, Mass.

National Council of Protestant Episcopal Churches, 281 Fourth Ave., New York City.

National Religion and Labor Foundation, 106 Carmel St., New Haven, Conn.

Synagogue Council of America, 1133 Broadway, New York City.

United Christian Council for Democracy, 457 W. 123rd Street, New York City.

AUXILIARY ORGANIZATIONS

Catholic Church Extension Society of the U. S. A., 360 N. Michigan Ave., Chicago.

Catholic Guardian Society, 1 Park Ave., New York City.

Catholic Protective Society, 477 Madison Ave., New York City.

Church League for Industrial Democracy, 135 Liberty St., New York City.

Community Church Workers of the U. S. A., The, 1302 Chicago Temple, 77 W. Washington St., Chicago, Ill.

Laymen's Movement for a Christian World, 347 Madison Ave., New York City.

Lord's Day Alliance of the U. S., 156 Fifth Ave., New York City.

National Conference of Christians and Jews, 381 Fourth Ave., New York City.

Woman's Christian Temperance Union, 1730 Chicago Ave., Evanston, Ill.

Woman's National Sabbath Alliance, 156 Fifth Ave., New York City.

Young Men's Christian Assn., 420 Lexington Ave., New York City.

Young Men's Hebrew Assn., 145 E. 32 Street, New York City.

Young Woman's Christian Assn., 600 Lexington Ave., New York City.

Young Woman's Hebrew Assn., 145 East 32 Street, New York City.

RELIGIOUS PUBLICATIONS

American Baptist Historical Society, Upland Ave., Chester, Pa.

American Baptist Publication Society, 1701 Chestnut St., Philadelphia, Pa.

American Bible Society, Park Ave., & 57th St., New York City.

American Tract Society, 21 W. 46th St., New York City.

Chicago Tract Society, 343 S. Dearborn St., Chicago, Ill.

Gideons, 202 S. State St., Chicago, Ill.

National Testament and Tract League, 200 Kellog Bldg., Washington, D. C.

Pocket Testament League, The, 156 Fifth Ave., New York City.

Religious Educational Assn., 59 E. Van Buren St., Chicago, Ill.

Society for the Propagation of the Faith, 462 Madison Ave., New York City.

MISSIONARY

Agricultural Missions Inc., 156 Fifth Ave., New York City.

American Board of Commissioners for Foreign Missions, 14 Beacon St., Boston, Mass.

American McCall Assn., 122 E. 22 St., New York City.

American Mission to Lepers, Inc., 156 Fifth Ave., New York City.

Christian and Missionary Alliance, 260 W. 44th St., New York City.

Committee of Reference and Counsel, 156 Fifth Ave., New York City.

Council of Women for Home Missions, 297 Fourth Ave., New York City.

XVII. RELIGION AND RELIGIOUS ORGANIZATIONS

HOME MISSIONS COUNCIL OF NORTH AMERICA, 297 Fourth Ave., New York City.

INTERNATIONAL MISSIONARY COUNCIL, 156 Fifth Ave., New York City.

MISSIONARY EDUCATION MOVEMENT OF THE UNITED STATES AND CANADA, 156 Fifth Ave., New York City.

NATIONAL COUNCIL OF JEWISH WOMEN, 1819 Broadway, New York City.

NEAR EAST RELIEF, 17 W. 46th St., New York City.

STUDENT VOLUNTEER MOVEMENT FOR FOREIGN MISSIONS, INC., 156 Fifth Ave., New York City.

WOMAN'S UNION MISSIONARY SOCIETY, 45 Astor Place, New York City.

PART SIX

SCIENCE—APPLICATION AND PRINCIPLES

DIVISION XVIII

MATHEMATICS AND ASTRONOMY

MATHEMATICS

By G. T. Whyburn
Professor, University of Virginia

GENERAL

In conformity with government regulations issued early in 1945 regularly scheduled meetings of the American Mathematical Society in February and April in New York and Chicago, respectively, were cancelled as was also a Summer Meeting which was originally planned for Montreal in June in connection with the Canadian Mathematical Congress. However, the Society was able to hold a highly successful Summer Meeting at Rutgers University in September. With the cancellation of the Office of Defense Transportation regulations concerning conventions, the normal series of meetings has now been resumed.

A large number of mathematicians continued to be engaged in research and other activities associated with the war during most of 1945. Despite this handicap, however, research and development in Mathematics for its own sake continued on a high level and resulted in publication at only a moderately reduced rate. Some of the significant developments will be treated briefly in what follows.

ANALYSIS

G. Pólya and G. Szegö developed a number of inequalities for the capacity of a condenser, among which is the following: The capacity C of the condenser formed by two parallel closed convex surfaces in three dimensions at distance h apart satisfies

$$A/h < 4\,C \leqslant m + A/h$$

where A is the area and M the integral mean curvature of the inner surface.

A new definition of exterior normal of a subset A of n-space at a point in the space was given by H. Federer, and the classical formula of Gauss-Green relating divergence in A and flux across the boundary of A was shown to hold under quite liberal conditions on the function and on the boundary of A. The conditions imposed on the boundary of A are a consequence of assuming the boundary has finite Carathéodory linear measure in the two dimensional case.

In the theory of measure it was shown by L. H. Loomis that by following older methods of Haar and Banach and defining measure directly in terms of converging ratios rather than by using an invariant integral, both the existence and the uniqueness of the Haar measure can be obtained simultaneously. Further, the proof uses only a very weak congruence relation, and the result applies in locally compact metric spaces.

FUNCTIONS

In connection with the famous hypothesis of Riemann concerning the zeros of the function $\zeta(s)$ defined by means of the infinite sum of $1/n^s$, which are of much significance in the theory of numbers, a valuable asymptotic relationship was established by E. K. Haviland. Using the related function $\xi(s)$, which has essentially the same zeros as $\zeta(s)$, Haviland derives a direct asymptotic relationship showing the behavior of the maximum M(r) of the modulus of $\xi(\frac{1}{2} + is)$ on the circle mod $s = r$ as r increases indefinitely whereas only a logarithmic approximation was known previously. The new relation is affected by each individual zero of $\xi(s)$, in contrast to the logarithmic approximation which was not influenced by the position of any finite set or of certain infinite sets of zeros.

In a general way a function of a real variable is considered to be "smooth" if it is differentiable in the ordinary calculus sense at each point. However, as is well known, a function may be continuous in an interval and yet not have a finite derivative at any single point in the interval. Such functions arise frequently in connection with trigonometric series; in this connection Riemann was led to a consideration of the smoothness of a function formulated somewhat less restrictively. This notion was further developed in 1945 by A. Zygmund who defines a function as *smooth* at a point provided it is defined in the neighborhood of the point and the ratio to h of the sum of its increments taken h units to the right and left of the point approaches zero with h. A function which has a finite derivative at each point of an interval is continuous and smooth in this sense throughout the interval, but not conversely. However, a function F which is continuous and smooth in this sense throughout an interval was known to have a finite derivative at-an-everywhere dense set E of points in the interval. Among the new results proven by Zygmund is one to the effect that if E is the set of all such points of differentiability of the function F on the interval, then F has the property of Darboux on E, *i.e.*, it takes on all intermediate values between any two of its values. Applications of this and other new results are made in the theory of trigonometric series.

CURVES AND SURFACES

The generally accepted concept of surface is based on a notion of equivalence due to Fréchet. A surface of the type of the circular disc (or 2-cell), for example, is a class of mutually equivalent representations, where a representation is a set of continuous functions defined on a given circular disc as parameter space and where two such representations T_1 and T_2 are equivalent in the Fréchet sense provided that for any positive number e the two parameter discs can be put into one to one continuous correspondence in such a way that T_1 and T_2 images of corresponding points are at distance apart less than e. A curve is defined similarly. Definitions of length and area for curves and surfaces in this sense have been given by several mathematicians, notably Lebesgue and Goecze.

In his 1945 Colloquium Lectures before the American Mathematical Society, T. Radó outlined a searching treatment of the entire subject of length and area and presented many new results obtained recently by him and his group of students and associates as well as covering the related work of others on the subject. Also in a paper published late in 1945 in the *Transactions of the American Mathematical Society,* Radó lays the topological foundation for his treatment of this subject by investigating closely the action of continuous mappings on Peano spaces, particularly with respect to Fréchet and other related notions of equivalence. In particular Radó establishes an important additivity theorem which affords conditions under which both Lebesgue Area and Goecze Area of a surface is cyclicly additive, *i.e.*, obtainable by adding the areas of the surfaces defined naturally on the separate cyclic elements of the middle space of the mapping when it is factored into its monotone and light factors. Also in a paper published in the *Proceedings of the National Academy of Sciences,* Radó defines a lower area $\alpha(S)$ of a surface S in terms of the essential multiplicity of functions of the mapping representation of the surface on subregions of the parameter space and develops conditions for existence of and relations between $\alpha(S)$, the Lebesgue Area $A(S)$ and the area $I(S)$ given by the classical area integral. In particular $\alpha(S) = A(S)$ in case S admits a representation of the form $z = f(x,y)$.

J. W. T. Youngs established the remarkable theorem that every surface whatever possesses a representation for which the classical double integral formula for area has definite meaning. Previously it was presumed that some surfaces had this useful property whereas others did not.

On the well known problem of Plateau of finding or showing the existence of surfaces of least area with given prescribed boundary, R. Courant obtained new results dealing with the case of surfaces with free boundaries, that is, the situation in which only part of the boundary is fully prescribed whereas the remainder, the *free* part, is merely restricted to prescribed boundary surfaces S. The existence of minimal surfaces M of least area in this situation had already been established; but the nature of the set of boundary points, or trace, of such a surface M on S was largely unknown except that this trace in general need not be a continuous curve. Courant shows that this trace will be a continuous curve if S is convex and if M is doubly connected and has its fixed boundary on a closed Jordan curve L outside S; and, further, it will be a rectifiable curve if in addition there exists a cone of supporting planes of S bounding together with S a portion of the space which contains L. Similar conclusions are asserted to be obtainable in the various other cases of the Plateau problem with free boundaries.

DIFFERENTIAL EQUATIONS

Significant advances in the theory of singular solutions of partial differential equations were made by J. F. Ritt and H. Levi. Ritt extended a theorem of his from ordinary differential polynomials to partial differential polynomials. The new result asserts that every irreducible component of the manifold of a partial differential polynomial is the general solution of some partial differential polynomial. Levi extends similarly a method due to Ritt and Levi of determining when an irreducible manifold in the manifold of a differential polynomial is essential, based on the so called "Low power theorem." Using these results of an algebraic nature as a basis, Ritt makes broad extensions of portions of Darboux's important work on singular solutions of first order partial differential equations. His treatment deals largely with the behavior of characteristics in the vicinity of singular solutions; and while his procedure is heavily influenced by algebraic viewpoints, it is nevertheless applicable to partial differential equations which are not of the algebraic type.

A. Wintner showed that if the assumptions of distinct real parts for the characteristic numbers in the constant matrix A_0 to which a matrix of functions $A(t)$ is assumed asymptotic in the work of Poincaré and Perron on analytic differential equations is reversed by supposing these characteristic numbers pure imaginary (or "stable"), a proper asymptotic relation between every solution $x(t)$ of the system $x' = A(t)x$ and a corresponding solution $y(t)$ of the trivial system $y' = A_0y$ may be obtained.

ELASTICITY

The prominent principle of statically equivalent loads, or Saint Venant's principle, in the theory of elasticity was discussed in an article by R. von Mises who shows that the principle in its traditional form does not hold true. The principle, stated only vaguely in many textbooks, is formulated by von Mises as follows: "If the forces acting upon a body are restricted to several small parts of the surface, each included in a small sphere, then the strains and stresses produced in the interior of the body at finite distance from all those parts are smaller in order of magnitude when the forces for each single part are in equilibrium than when they are not." He shows essentially that Saint Venant's principle is applicable if all forces involved are parallel and not tangential to the surface of the body, but not under more general conditions.

Also closely related to the work of Saint Venant is a paper by J. L. Synge in the *Quarterly of Applied Mathematics* dealing with the boundary value problem of the theory of elasticity for the cylinder with free sides and arbitrarily loaded ends. The problem was greatly simplified by Saint Venant by relinquishing the requirement of arbitrarily prescribable load distributions and introducing other hypotheses. Synge gives a precise mathematical formulation of the general problem and of the restricted problems related thereto and presents the Saint Venant solution for the restricted case in tensor notation. He also indicates possible methods of attack on the more general cases of the problem.

In this connection mention should be made of a comprehensive and largely self-contained treatment of the membrane theory of shells of revolution which was published in 1945 by C. Truesdell in the *Transactions of the American Mathematical Society.* The *membrane theory* of thin shells is concerned with portions of the shell far from supports or points where one of the radii of normal curvature is small where the moments and certain other terms are negligible in comparison to the resultant stresses—in contrast to the *bending theory* in which these terms are significant. Truesdell's paper supplements Flügge's book on statics and dynamics of shells, and many new results and new derivations are included.

STATISTICS

As formulated by A. Wald in a paper in the *Annals of Mathematics,* the problem of statistical inference is to construct a function w(E), called a statistical *decision function,* which associates with each sample observation (point)E an element w(E) of a given system S of subsets of a given class of distribution functions so that a certain hypothesis H_w is accepted when E is observed. A risk function is defined in terms of the weight function by means of a Stieltjes integral. Wald had defined earlier a decision function as optimum provided it minimizes the maximum of the risk function. In his paper here referred to he proves the existence of optimum decision functions, proves that any two such functions generate the same risk functions, and establishes other related results. Also relationships to von Neumann's interesting theory of games are brought out.

DIFFERENTIAL GEOMETRY

Interesting new characterizations of the Euclidean sphere were obtained by S. Chern in terms of differential-geometric properties. For example, a convex closed surface in Euclidean three space, differentiable of order three or higher and having a tangent plane at each point, is a sphere provided the differentials of the principal curvatures are linearly dependent in a linear relation with positive coefficients.

S. B. Myers proved that in a locally compact almost complete metric space any two points which can be joined by a rectifiable arc can be joined by a geodesic arc, thus extending substantially an earlier theorem of Menger. An almost complete metric space is one in which any sequence will converge provided that for any positive number e, any member of the sequence of sufficiently high index is joinable to all but a finite number of the other members by an arc of length less than e.

T. Y. Thomas showed that in general the mean curvature of a surface yields an algebraic determination of the second fundamental form of the surface and, indeed, succeeded in deriving the explicit equations giving this determination.

ALGEBRAIC GEOMETRY

C. Chevalley has developed a *local* theory for the intersection multiplicities of algebraic varieties which offers decided improvement over the theory of van der Waerden who first founded the notion of intersection multiplicity for two algebraic varieties. Chevalley's theory includes an intersection theory for algebroid varieties and succeeds in attributing a multiplicity to a component of the intersection of two varieties even in cases where other components of this intersection have high dimensions.

ABSTRACT ALGEBRA

In abstract algebra, N. Jacobson published a paper in which the foundations of a general theory of simple rings both associative and non-associative are laid. In case a simple associative ring contains either a minimal right ideal or a maximum right ideal a realization of the ring is obtained in the form of a ring of linear transformations in a vector space over a division ring. The structure theory developed here hinges essentially on an extension of Burnside's theorem on irreducible algebras of matrices.

R. P. Dilworth answered in the negative the question in Lattice Theory as to whether every lattice with unique complements is a Boolean algebra by showing that *every lattice* is a sublattice of a lattice with unique complements.

Contributions to the theory of forms were made by C. C. MacDuffee and by Gordon Pall. MacDuffee's work deals with algebraic forms of higher degree and discusses the theory of composition for principal ideal rings. Previously he had established a multiplication result for the determinants of matrices corresponding to ideals of an integral domain of a finite algebra over the quotient field of a ring. Pall reported a rapid method of computing complete systems of invariants of integral n-ary quadratic forms using coefficients in the rational field.

NUMBER THEORY

An elementary but powerful method of reducing the general problem of resolution of so-called separable system of diophantine equations to the case in which only equations and inequalities of degree not higher than two occur was developed by E. T. Bell. As a consequence, complete solutions of certain types of homogeneous equations of the second degree may be obtained whereas only special cases had yielded to previously known methods.

A classical problem of Euler concerns the diophantine equation $x^4 + y^4 + z^4 = w^4$ and asks whether there are non-trivial integer solutions of this equation. It was known that no such solutions exist with w less than 124; and in a paper by M. Ward published in 1945, a method was indicated by means of which the author has shown that no solution exists with w less than 10,000. Thus the existence of any solution of the required sort appears less likely.

J. Livingood found convergent series giving the number of partitions of a positive integer n into summands of the form $pl \pm a$ where p is a fixed prime greater than 3. The method and results are direct extensions of the work of Lehner for $p = 5$.

Conditions under which all totally positive integers possess decompositions into totally positive integral mth powers in a given algebraic number field K are developed in a paper by C. L. Siegel in the *Annals of Mathematics.* In particular it is shown that if K is totally real and if all totally positive integers are sums of integral squares in K then K is either the rational number field R or the real quadratic number field $R(\sqrt{5})$; whereas if K is not totally real, then this conclusion holds if, and only if, the discriminant of K is odd. Further, Siegel proves the sharper result that *five* integral squares are sufficient for the decomposition although *three* would not suffice in all cases.

GROUP THEORY

A system of elements with one composition satisfying essentially the same conditions as for a group with the omission of the associativity law is called a *loop*. In a paper published by R. Baer in 1945, homomorphism theorems for loops are developed quite analogous to the classical theorems of this type in group theory. Thus the associative law plays a small role in such theorems for ordinary groups.

Many problems of group theory are known to be concerned with the lattice of subgroups of a group rather than with the group elements. An important problem suggested by this situation is that of finding conditions under which two groups have isomorphic subgroup lattices. This problem had been considered by Baer for the case of abelian groups and in 1945 it was solved completely by A. W. Jones for the case of finite groups with modular subgroup lattices. Jones also shows that isomorphism between subgroup lattices of two groups does not in general imply isomorphism of the groups themselves.

TOPOLOGICAL GROUPS

Significant contributions to the theory of topological groups of transformations were made by Deane Montgomery and by S. Bochner. Montgomery showed that, if G is a compact effective group of transformations acting on an analytic manifold and if each transformation of G is analytic, then G does not contain arbitrarily small subgroups other than the identity and thus G is a Lie Group. He shows further the remarkable result that, if G is locally compact and acts on a manifold of class C^1 and each transformation of G is of class C^1, then the derivatives of the functions which define the transformations locally are equally uniformly continuous. This result is used to obtain the same conclusion mentioned above for a compact effective transformation group when the manifold acted on as well as the individual transformations are only assumed to be of class C^1. The same result has a most significant bearing on the work of Bochner in this connection. Bochner obtained substantial generalizations of theorems of Cartan and Caratheodory on automorphisms and general transformations of a domain into itself, succeeding in replacing the assumption of analyticity on the transforming functions by the condition of equicontinuity for the derivatives of these functions.

TOPOLOGY

It was shown by R. L. Moore that a plane continuum M having a tangent at each of its points in the sense of Besicovitch is of fairly simple structure from the topological viewpoint. In particular, every subcontinuum of M must be a continuous curve, the set of all emanation points of triods lying in M has a totally disconnected closure, and at most a countable number of points of M can be the origin of a ray tangent to M at that point, and the set of all such points is an inner limiting set and has a totally disconnected closure.

An axiom essentially to the effect that "every arc has two sides" was introduced and studied by G. S. Young in connection with axioms of R. L. Moore. Characterizations of open and closed two dimensional manifolds and of imbeddability in such manifolds were obtained by Young using this axiom.

A simple plane web as originally defined by R. L. Moore is a compact plane continuum M which admits two simultaneous upper semi-continuous decompositions G and W into continua satisfying (1) the hyperspaces of both G and W are dendrons, and (2) any pair of elements chosen from G and W respectively have a nonempty totally disconnected intersection. R. H. Bing showed that an equivalent definition is obtained if condition (1) is omitted. Bing also developed conditions under which collections of disjoint continua filling up a simple plane web are non-equicontinuous, and he announced a remarkable characterization of simple plane webs to the effect that a plane continuous curve is such a web if, and only if, it remains connected and locally connected on the omission of any countable set of points.

An interesting related study of the structure of continua X by means of the lattice D(X) of all upper semi-continuous decompositions of X into disjoint closed sets was made by M. E. Shanks. If $D_m(X)$ denotes the set of all decompositions in D(X) whose elements are continua, among other things Shanks showed that two continua X and Y are homeomorphic if, and only if, there is an isomorphism of $D_m(X)$ onto $D_m(Y)$ which carries the class of all simple decompositions in $D_m(X)$ onto the class of all simple decompositions in $D_m(Y)$, where a decomposition is simple if at most one of its elements is non-degenerate.

Extending former results of Schweigert, A. D. Wallace showed that any topological mapping of a compact connected Hausdorff space onto itself which leaves an end point e fixed also leaves invariant a continuum in the complement of e and having no cut point; further, if the space acted on is locally connected, some point other than e is also fixed.

The fruitful concept of regular convergence of a sequence of sets received further expansion and development in the work of P. A. White. *Co-regularity* of convergence and *completely avoidable regularity* of convergence are defined by White using bounding relationships in the complement of a point. Use of these properties enables one to carry over to the limit set much of the structure of the members of a convergent sequence of sets of a given type; this is particularly true in the case of simple curves and surfaces. Also White has proved that most of the fundamental results of Wallace concerning O-regular transformations carry over to the higher dimensions of regularity.

A transformation is called an isometry if it changes the distance between no pair of points at all and is called an e-isometry if it changes all such distances by at most e $(e > 0)$. D. H. Hyers and S. M. Ulam showed that, for transformations acting on an n-dimensional Euclidean or Hilbert space E and mapping E into itself, any e-isometry can be approximated arbitrarily closely by a true isometry.

Expanding a method developed earlier by him based on a combination of cohomology theory and some results on homology local connectedness, E. G. Begle obtained simple proofs for the Alexander Duality Theorem and other duality theorems for generalized manifolds. The Poincaré Duality Theorem had already been established by this method by Begle.

In continuation of earlier work of Hopf and Hurewicz, S. Eilenberg and S. Mac Lane developed further extensive relationships between the homology and the homotopy groups of a space. In particular it is shown that the homology and cohomology groups of an arcwise aspherical space are determined by the fundamental group (*i.e.*, the one dimensional homotopy group) of the space, where a space is aspherical if all homotopy groups of dimension greater than one reduce to the neutral element. Similar relations are obtained assuming all homotopy groups with dimensionalities between 1 and r reduce to the neutral element. In another paper the same two authors make an extensive study of a quite general nature of so-called natural equivalences. This embraces concepts, operations, and methods of reasoning familiar to many branches of mathematics; but as definite applications to topology are developed, it is mentioned here. Part of the value of this study lies in the unifying effect it may very well exert on the development of pure mathematics as a whole.

S. Eilenberg and N. E. Steenrod presented in outline form an axiomatic treatment of homology theory based on abelian homology groups, a boundary operator and an induced homomorphism associated with each mapping as primitive concepts, rather than on complexes. The detailed treatment is promised in book form.

TOPOLOGICAL DYNAMICS

In a study of homeomorphisms with almost periodic properties, M. Garcia defines orbit connectedness of two points in the space and the corresponding notion of orbit component of the space, both concepts depending on a given mapping, of course. The resulting properties are developed and shown to have significant bearing on the more usual dynamical properties such as recurrence, transitivity, minimal sets, and so on.

P. Erdös and A. H. Stone extended to non-compact spaces and to mappings not necessarily topological certain results of Gottschalk concerning powers of recurrent or almost periodic mappings, at the same time obtaining simplified proofs. They showed, further, that a homeomorphism acting on a totally bounded metric space and all of whose negative powers are equi-uniformly continuous, is necessarily almost periodic; if in addition also the positive powers are equi-uniformly continuous, there are two infinite sequences of powers of the mapping each converging uniformly to the identity mapping and where the indices of the second sequence are the squares of those in the first.

ASTRONOMY

By Rupert Wildt

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MEETINGS AND PERSONNEL

The American Astronomical Society did not meet during 1944. The regular winter meeting, scheduled for Feb. 27-28, 1945, had to be cancelled because of wartime travel restrictions, but a business meeting of the Council was held in June at the Harvard College Observatory. Plans had been under discussion for some time to honor Dr. Henry Norris Russell, dean of U. S. astronomers and past president of the Society, upon the completion of 40 years on the faculty of Princeton University. The Council of the Society approved of the suggestion to establish a permanent lectureship in his name, and a committee was formed to raise the necessary funds to maintain an annual lectureship of international significance.

During the year, new directors were appointed at three of the largest observatories. Upon the retirement of Dr. Walter S. Adams, Dr. Ira S. Bowen will become Director of the Mount Wilson Observatory (Carnegie Institution of Washington), at Pasadena; he will also be in charge of the new Astrophysical Observatory of the California Institute of Technology, which has been under construction for several years on Mt. Palomar, near San Diego, Calif. Work on the 200-inch telescope, which will be the chief instrument of the new observatory, had to be abandoned during the war, but was resumed toward the end of the year. At the Lick Observatory of the University of California, on Mt. Hamilton, Dr. C. D. Shane has succeeded Dr. J. H. Moore as director. Dr. Harold L. Alden, since 1925 in charge of the Yale University Observatory's station at Johannesburg, South Africa, returned to the United States to assume the directorship of the Leander McCormick Observatory of the University of Virginia, as successor to Dr. S. A. Mitchell.

Dr. Richard Prager, Research Associate of the Harvard Observatory, an international authority on the study of variable stars, died July 20, at the age of 62.

The Catherine Wolfe Bruce Gold Medal of the Astronomical Society of the Pacific was awarded for the year 1945 to Dr. E. A. Milne, fellow of Wadham College and Professor of Mathematics in Oxford University. No award of the Bruce Medal had been made during the preceding three war years.

TOTAL SOLAR ECLIPSE

The cessation of hostilities in Europe facilitated an intensive study of the total solar eclipse which occurred on July 9, 1945. According to newspaper reports, 20 groups of Soviet astronomers were assembled along the

Russian part of the path of totality, and 12 expeditions were located at Skelleftea, Sweden. It is particularly gratifying that a French party, consisting of six astronomers, were able to go to Sweden and were favored by the weather. On this continent, Dr. D. H. Menzel, of Harvard, had set up elaborate equipment at Bredenbury, Saskatchewan, but was completely foiled by bad weather.

The operation "Eclipse," planned by the Royal Canadian Air Force for the purpose of making photographic observations of this eclipse from the air, deserves special mention. The program was carried out by No. 7 Photo Reconnaissance Wing of the Air Force, and was coordinated with the comprehensive series of ion-spheric observations sponsored by the Canadian Radio Wave Propagation Committee. The Central Navigation School of the R. C. A. F. at Rivers, Man. served as base of operation. Four airplanes were employed, a Spitfire, a Mitchell, and two Ansons. In three of these, seven cameras (three spectrographic and four direct) were mounted, the camera axes being directed out the port sides of the planes at an elevation of 12 degrees. The fourth aircraft, an Anson flying at 15,000 feet, was employed to give motion picture coverage of the partial and total phases.

The spectrographic observations were designed to obtain a complete photographic record of the chromosphere and corona throughout totality, and in particular to make a study of the polarization in these spectra. The direct cameras were used to record the corona and prominences in the visual region as well as in the infra red. All cameras were standard types used in aerial photography; they were mounted behind windows of specially selected plate glass. With a strong tail wind, the actual run across the eclipse path was made at a ground speed of 250 miles an hour; temperature was near —40°F. As far as is known, the first photographs of an eclipse from over 30,000 feet altitude and the first spectra taken from the air were secured in this operation. A preliminary examination of the photographs indicated that results of great significance can be anticipated. Further investigation will be in the hands of Dr. Peter M. Millman, a squadron leader in the R. C. A. F., upon his return to his peacetime pursuits as a staff member of the David Dunlap Observatory of the University of Toronto.

SOLAR SPICULES

The most recent addition to the Harvard College Observatory's far-flung activities is the Fremont Pass Station at Climax, Col., which is equipped with a coronagraph. This ingenious instrument, invented about 10 years ago by the French astronomer, B. Lyot, is designed to cut down the glare of the solar light scattered by the earth's atmosphere and thus to record the faintly luminous phenomena at the solar limb, which until then had been accessible to inspection only during total solar eclipses. W. O. Roberts, who has been in charge of the Fremont Pass Station, succeeded in following cinematographically the development and decay of what he calls solar spicules, tiny spike-like prominences at the solar limb. They have been previously observed under good atmospheric conditions during eclipses, but it was the coronagraph which permitted systematic studies of their number and duration.

The spicules are most commonly seen near the polar regions of the sun and last only four or five minutes. As many as 25 spicules have been seen simultaneously in a 60-degree arc of the sun's polar limb. Their width and height is of the order of a few seconds of arc. The velocity of motion of a typical spicule is estimated to be about 30 km/sec radially outward from the sun's center. Spicules appear to possess characteristics very similar to those now ascribed to solar granulations, and indeed may represent essentially the same phenomena viewed in projection against the solar limb which are known as granules when observed in projection on the disc.

NEW COMETS

Beside the return of several well-known periodic comets, some new comets were discovered; none of them was a conspicuous object. The first was observed by D. du Toit at the Boyden Station of the Harvard College Observatory in South Africa, on April 9. This comet, found in the constellation Leo, was of the 10th magnitude. Though well situated for observation in the northern hemisphere, too, no observations were obtained here. A second new comet of the 10th magnitude was announced by the same observer on June 11. Since the comet was located in Cetus and moved in southwesterly direction, it could not easily be reached from northern observations, but it has been well followed by southern observers.

The discovery of a new comet was reported on July 2 by Leslie C. Peltier, of Delphos, O., a distinguished amateur astronomer who already has several comet discoveries to his credit. An orbit of this object computed from observations made at the Lick Observatory turned out to be identical with that of Comet Kopff.

On Dec. 11, du Toit discovered his third comet, an object of 7th magnitude, at declination —65°.

NOVAE 1945

N. Tamm, at his private observatory in Sweden, discovered a nova of 7.5th magnitude in Aquila on Aug. 28. The spectrum, similar to that of Nova Geminorum, indicated that the nova was then already past its maximum light phase; probably 1½ magnitudes fainter than at its maximum.

In the course of a survey of objective prism plates taken at the Leander McCormick Observatory, Father W. J. Miller, S. J., has found a 12th-magnitude star in Lyra with a spectrum of nova-like features. The star is a variable, apparently with recurrent-nova characteristics. Examination of Harvard plates from the 1890's onward shows this star to have reached a maximum of 11th or 12th magnitude several times in the past 50 years. Most recently it was between 10.5 and 11.0 from May 29 to June 4, 1944.

On April 6, M. L. Humason discovered a supernova in the galaxy NGC 5195, a companion to the famous spiral nebula M51 in Canes Venatici, which he then had under observation for the first time in three years. He noticed the presence of the faint star with which he was not previously familiar and confirmed his suspicion that it might be a supernova by obtaining a spectrum on the following night. The star faded rapidly thereafter and would probably have been overlooked a few weeks later. The fact that a supernova appears in a spiral nebula but once in about every 400 years makes the coincidence seem all the more remarkable. Most supernovae are later discovered accidentally on photographic plates not minutely examined at the time they were exposed.

SPECTROPHOTOMETRY OF VARIABLE STARS

The study of the intensity variations of stellar light forms an important part of observational astronomy. Thousands of intrinsically variable stars are known by this time, beside the so-called eclipsing variables. Since it is difficult to keep such large numbers of objects under steady surveillance, professional astronomers have come to rely in this field of study on the collaboration of amateurs, organized in this country as the American Association of Variable Star Observers. While the amateurs continue to do an admirable job in keeping track of the majority of variable stars, the detailed investigation of the finer traits of variability demands such large instrumental means that it remains the prerogative of the big observatories to analyze the spectra and radial velocities. During the past year two important contributions have come from United States observatories dealing with the variation in monochromatic light of the two stars δ Cephei and Mira Ceti, which are the prototypes of the classes known as Cepheids and Mira Variables.

At the Mt. Wilson Observatory, J. Stebbins has determined the photoelectric light-curves of δ Cephei in six colors (isolated by filters) ranging from ultraviolet (λ 3530 A) to infrared (λ 10,300 A). These curves are all smooth, without secondary fluctuations, and are repeated accurately over years at a time. The amplitude of variation decreases from $1.^m48$ in the ultraviolet to $0.^m43$ in the infrared. The times of maximum and minimum are progressively later with larger wave lengths, the displacement of phase amounting to 0.05 period, or 0.27 day, between λ3530 and λ10,300. The colors and spectrum of δ Cephei at maximum light match closely the colors and spectra of super giant stars of type cF4, while at minimum the match is with type cG2. The general nature of these color phenomena of Cepheid variation has been well known for some time, but never before have observations of such high accuracy been obtained; hence Stebbins' work should prove of utmost value for a detailed test of the mathematical theory of Cepheid variation, as developed by Eddington and M. Schwarzschild.

At Harvard, R. M. Scott made a photometric investigation of the continuous background in the spectrum of Mira Ceti, and has proved that the entire variation in the photographic magnitude can be explained as the result of the variation of the surface temperature of this star and of the ensuing variation of molecular and atomic absorption. The monochromatic magnitude at λ4150 agrees with the magnitudes predicted from the radiometric temperatures and thus precludes any variation produced by non-selective absorption. Moreover, the level within the atmosphere of the source of the hydrogen absorption is definitely placed beneath the level of the calcium absorption. The quantitative behavior of the α emission line of hydrogen located within the contour of the calcium absorption line is accurately explained by this assumption.

T TAURI VARIABLE STARS

A. H. Joy, at the Mt. Wilson Observatory, completed a study of the spectra of 11 irregular variable stars, forming a class known as the T Tauri variables. Its distinctive characteristics are: (1) irregular light variations of about three magnitudes, (2) spectral type F5-G5 with emission lines resembling those of solar chromosphere, (3) low luminosity, and (4) association with dark or light nebulosity. The stars are situated in or near the Milky Way dark clouds in the direction of the center or of the anticenter of our galaxy.

Spectroscopic absolute magnitudes of three stars of the group, together with meager indirect evidence, indicate that the T Tauri stars are dwarfs of the main sequence. Color indices of five show some color excess, which is probably the result of selective absorption by surrounding nebulosity. Radial velocity measures from absorption lines are different when the emission spectrum is present. Lack of agreement in the measures of both absorption and emission spectra indicates irregular atmospheric motions. In the mean the emission lines are displaced toward the violet with respect to the absorption lines. Among the emission lines λ4202 and λ4307 of Iron show a singular behavior, being much enhanced relatively to the rest of the lines belonging to the same multiplet. This peculiarity has recently been discovered quite independently by G. H. Herbig, who suggested a special fluorescence mechanism apparently capable of explaining the selective enhancement of these lines.

ANDROMEDA NEBULA

In recent years it has become increasingly evident that the Andromeda nebula (M31) is a stellar system similar to our own galaxy in size, probably similar in form and structure, and possibly so in stellar composition. C. K. Seyfert and J. J. Nassau have applied the method of star counts to the study of the Andromeda Nebula, not only in order to increase our knowledge about the composition of that system, but to give us additional clues by analogy about the structure of the Milky Way.

Counts of stars with apparent magnitudes ranging from 15.0 to 18.5 in and around the Andromeda Nebula have been made on blue-sensitive plates taken with the 24-36-inch Schmidt telescope of the Case School of Applied Science. In order to calibrate the counts, magnitudes of a sequence of stars near M31 from 14.9 mag. to 18.3 mag, were determined by comparison with Selected Area 20 and the North Polar Sequence. The counts, corrected for the foreground stars, show a total of 2,564 stars belonging to M31 between the limits of absolute magnitude —3.8 and —6.3. The apparent shape of M31 as outlined by the counts is roughly elliptical and agrees reasonably well with isophotal contours of the spiral obtained from the same plates by means of a recording microphotometer.

Combining their results with those recently arrived at by W. Baade, on the basis of Mt. Wilson photographs of M31, the authors present the following picture of the Andromeda Nebula: (a) a nucleus of approximately 1,000 parsecs diameter, composed of relatively low-luminosity stars fainter than —1.1 abs. mag.; (b) the main body of the spiral with a diameter of 6,000 parsecs, containing highly luminous stars as bright as —6.3 abs. mag.; (c) the boundary region of the spiral, as detected by star counts, extending from the main body to about 11,000 parsecs diameter, in which no stars brighter than —5.3 abs. mag. are found from the counts; (d) the faint outer envelope extending to perhaps 25,000 parsecs diameter, detectable only with the photoelectric cell or from microphotometer tracings of photographs. The fact that this shell contains no stars brighter than —3.8 in sufficient numbers to be detected by the star counts suggests that the envelope may have a stellar composition similar to that of the nucleus. This inference is supported by the fact that Baade observed numerous extremely faint stars along the minor axis of M31 to a distance of 32 minuses of arc from the center.

PERIODICAL PUBLICATIONS

American Journal of Mathematics
Johns Hopkins Press, Baltimore.

American Mathematical Monthly
Illinois Institute of Technology, Chicago, Ill.

Annals of Mathematics
Princeton University Press, Princeton, N. J.

Astronomical Journal
Yale University Observatory, New Haven, Conn.

Astrophysical Journal
5750 Ellis Ave., Chicago.

Bulletin of the American Mathematical Society
531 West 116th Street, New York City.

Duke Mathematical Journal
Duke University Press, Durham, N. C.

Journal of Mathematics and Physics
Massachusetts Institute of Technology, Cambridge, Mass.

Popular Astronomy
Carleton College, Northfield, Minn.

Publications of the Astronomical Society of the Pacific
129 Twenty-fourth Ave., San Francisco, Calif.

School Science and Mathematics
3319 N. 14th St., Milwaukee, Wis.

Sky and Telescope
Harvard College Observatory, Cambridge, Mass.

Transactions of the American Mathematical Society
531 West 116th Street, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Astronomical Society, Dearborn Observatory, Evanston, Ill.

American Mathematical Society, 531 W. 116th St., New York City.

Mathematical Assn. of America, Cornell University, Ithaca, New York.

National Academy of Sciences, 2101 Constitution Ave., Washington, D. C.

DIVISION XIX

ENGINEERING AND CONSTRUCTION

STRUCTURAL ENGINEERING

By William A. Oliver*
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GENERAL

Probably the most important accomplishment of the construction industry during 1945 was the progress made in post-war planning. While work was done and important structures were completed, evidence shows that the industry spent a large share of the time looking hopefully into the future. Although the construction industry has apparently been comparatively free of labor strikes and unrest, labor conditions in the manufacturing industries have handicapped it from two directions. On the one hand labor difficulties among the materials and equipment manufacturers caused a lag in the production of construction materials for peacetime building and on the other hand these same difficulties caused management to be slow in projecting and getting underway plant expansion for peacetime activities. There is need to be somewhat less than optimistic in view of conditions in industry as they exist at present but some comfort can be obtained from the realization that, after a worldwide catastrophe like the recent war, even under the best of conditions turmoil was bound to exist universally during the period of readjustment.

After the above somewhat pessimistic statements have been made, it should be immediately noted that the War Production Board estimated that the total volume of construction in the United States for 1945 was $4,500,000,000, an increase of about 15 per cent over the preceding year. However, 1944 was the low year for the construction industry, the volume during that year being less than half what it was in 1942 and 1943, the peak war years. Nevertheless, while total construction for 1945 lagged considerably behind what it is during normal years it is encouraging to be able to state that the trend is upward. It must be remembered that comparative annual construction volumes for the past four or five years can not be obtained accurately by comparing annual construction costs since the costs have been consistently increasing, yet these cost figures may be taken as satisfactory for the purposes of this review.

There is another encouraging and agreeable fact regarding construction during 1945 which should be mentioned. During the war years, as was to be expected, public construction far exceeded private construction. As a matter of fact there was practically none of the latter until 1944 when the amount began to show an increase. In 1945 private construction consistently continued this increase while the total amount of public construction declined, and it is interesting to note that during August, the month in which V-J Day occurred, private construction exceeded public construction for the first time for a number of years. The trend of the one has continued to be upward and that of the latter downward.

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* The author wishes to make acknowledgment to the following sources for factual material presented—*Engineering News-Record*, Tennessee Valley Authority, Bureau of Reclamation, Chief of Engineers of the U. S. Army, and various technical associations.

A few words regarding the future are of interest. The War Production Board forecast that the total volume of new construction for 1946 will be approximately $6,500,000,000, 44 per cent above the 1945 level. Of this, an estimated $4,350,000,000 will be invested in private construction, an increase of about 73 per cent over that of 1945. It appears probable that public construction, the balance wheel of employment, will move forward only where essential, thus leaving both labor and material fully available for private construction until the more pressing needs of the latter have been satisfied. The construction requirements of the country are such that this accelerating activity should continue for a number of years. All prognostications are of course dependent upon the condition that labor and management are able to iron out their differences.

Research as well as progress generally in the use of the three major construction materials — concrete, steel, and timber — went forward during the year although the rate of advance was evidently much slower than during the rush of the war years. While progress in new methods of construction is not primarily dependent upon business conditions in the industry, such progress inevitably lags when business conditions are poor.

Before discussing the three materials mentioned above attention should be drawn to a fourth material—high strength aluminum alloys—which, now that the war is over, may loom larger in the construction field particularly where light weight and comparatively high strength are primary requirements. During the war, demands for aluminum for other purposes were so large that a greatly expanded production capacity was necessary in order to produce the amount needed. With hostilities ended, these unusual requirements will no longer exist, so that larger quantities of the material than ever before should be available for buildings, bridges, and related purposes. This supposition is supported by the increase in the number of news items and articles concerning aluminum alloys which recently appeared in the technical press.

Trade and technical organizations interested in advancing the use of all three of the materials—concrete, steel and wood—are proposing new specifications in which the higher working stresses, made mandatory for temporary war construction by War Production Board directives are recommended for permanent post-war construction. The interested associations justify these higher working stresses on the basis of increased knowledge in the theories of structural analysis, increased skill in methods of erection and construction, and more rigid production controls over the quality of the material. Although these new specifications have not as yet been generally accepted by the engineering profession, upon due consideration they probably will be, with minor changes being made to conform to the thinking of the professional societies.

Functional design, where the form of the structure expresses its purpose, has been receiving an increasing amount of attention because of the stimulation war gives to all fields of endeavor. Reinforced concrete, frequently called liquid stone by the architect, is a material which readily adapts itself to this expression of function. Deposited in a wet condition it flows into any shape desired. As a result of the developments which have taken place in flame cutting, welding technic, and in the production of more weldable steels, steel construction, also, has become more fluid. As a result of new methods of fastening and new physical properties gained through impregnation processes, even wood, long considered the most limited of the construction materials in scope of form, has been used for structural forms deemed impossible for that material a very few years ago.

These general statements regarding functional design are exemplified by

150-ft. diameter elliptical thin shell concrete domes, long span welded steel rigid-frame members and long span glued laminated wood arches to mention only a few. These developments are not confined to 1945, nor even to the war years, but sufficient consideration has been given to them during the past 12 months to make them worthy of note in a review of 1945 progress.

Cement production is an index of the volume of concrete construction. During the first ten months of 1945 material shipment statistics showed a movement of 89,956 barrels of cement, a 9 per cent increase over the amount moved during the same period in 1944. The tonnage of fabricated structural steel for the first ten months was reported as 631,891 tons, an increase of 31 per cent above the tonnage for the same period in 1944.

The Lumber Survey Committee, made up of a group of the nation's leading business men and reporting to the Secretary of Commerce, reports that lumber production is still declining in the face of unprecedented demand. The quarterly report (Nov. 23, 1945) indicates that the continuing decline is the result of restrictive OPA pricing, labor and equipment shortages, and strikes with little prospect of relief of the situation before next spring. National Lumber Manufacturers Association estimates show a 1945 production of 26,700,000,000 feet with a total consumption for the year of 29,313,000,000 feet. The reports for 1944 showed a production of 33,800,000,000 feet. During 1944 and 1945 wood was the most critical of our materials of construction and will continue to be so for some time in the future.

A review of the more interesting or important construction projects where significant progress was made during the year or which were completed is presented in the following pages. This includes the work of the three great Federal construction agencies, the Tennessee Valley Authority, the Bureau of Reclamation, and the Corps of Engineers, U. S. Army.

DAMS AND RELATED WORKS

General.—During 1944, President Roosevelt proposed the establishment of a Missouri Valley Authority patterned after the Tennessee Valley Authority established in 1933. This was to be for the purpose of developing flood control, irrigation, navigation, and hydroelectric power in the basin of the Missouri River. Considerable opposition to this plan of accomplishing the work has developed, particularly in the West, and while definite methods of procedure are still in process of formation indications are that existing Federal agencies will eventually construct the project. The agencies now involved are the Corps of Engineers, U. S. Army, and eight agencies of the Department of the Interior—Bureau of Reclamation, Geological Survey, Fish and Wildlife Service, Bureau of Mines, Office of Indian Affairs, General Land Office, National Park Service, and the Grazing Service. The Bureau of Reclamation and Corps of Engineers will of course play the major roles. The former will handle projects primarily related to irrigation while the latter will build those related to flood control and navigation.

It seems apparent that similar developments will eventually be carried out in all of our great river valleys. President Truman has recently suggested the establishment of an agency to "study and maintain inventories of national wealth and resources." These proposals are all indicative of the great volume of construction which will be accomplished in the next few decades.

TENNESSEE VALLEY AUTHORITY

During the calendar year, construction operations on Kentucky and Fontana Projects, the last in the war emergency program, were pushed to virtual completion. Thus, the physical structures contemplated by the TVA Act of May 1933 and by the subsequent emergency war measures for the control of floods, for the regulation of navigation depths in the main river, and for the generation of electric power have come close to full realization. Regardless of what controversy may have been instigated by the political and social implications of the Tennessee Valley Authority project, no criticism has ever been advanced concerning the integrity of its engineering design and construction, and the completion of that project marks a milestone in engineering accomplishment.

Hydro plants acquired by TVA have a total capacity of 341,482 kilowatts and fuel plants acquired have a capacity of 196,400 kilowatts. By agreement, the operation of eight hydro plants owned by the Aluminum Company of America, with a capacity of 311,120 kilowatts, is directed by TVA as an integral part of the overall system. In addition, 20,000 kilowatts of steam capacity is leased. The total system capacity at the end of 1945 was 2,545,102 kilowatts. The useful reservoir storage capacity of the entire TVA system of reservoirs is 13,200,000 acre-feet.

KENTUCKY PROJECT

Major construction operations in the powerhouse and switchyard area continued during the year. The third 32,000-kilowatt-capacity generating unit was placed in commercial operation on April 6 and the fourth unit was scheduled for December 1945. The fifth and final unit is under construction and will be completed late in 1946.

In January, the four concrete pontoon sections comprising the upper lock guard boom were floated from their construction berth on the downstream left bank to their final position where they were assembled and grouted into a single unit. The second 100-ton intake and spillway gantry crane was completed in May. The abandoned Illinois Central Railroad bridge below the dam was removed, and five spans were salvaged for reuse in the new Nashville, Chattanooga & St. Louis Railroad bridge near Trotter's Landing, 78 miles above Kentucky Dam. Three 300-foot spans were moved intact on a special floating rig by the contractor.

In the reservoir, the 310 miles of highway relocation work, including four major highway bridges, neared completion. The 38 miles of railroad relocation including the Illinois Central, Nashville, Chattanooga & St. Louis, and Louisville & Nashville Railroad relocation work was practically finished. This included two major railroad bridges crossing the reservoir, the L & N Railroad bridge at Danville, Tenn., which was raised for reservoir and navigation clearance, and which was placed in service in June of 1944, and the nearly complete new N. C. & St. L. Railroad bridge at Trotter's Landing, 78 miles above the dam.

The Kentucky Project was dedicated by President Truman on Oct. 10.

FONTANA PROJECT

A total of 2,806,000 cubic yards of concrete has been placed in Fontana Dam. The powerhouse and switchyard were virtually completed during the year and two 67,500-kilowatt-capacity generating units were placed in commercial operation on Jan. 20 and March 24. A third unit can be installed readily at any time. Other major items of construction during 1945 included completion of the foundation grout curtain, completion of the mass concrete cooling, and reconstituting the system of separate blocks into a monolithic structure by pressure grouting of the joints. The transverse and longitudinal joints performed their function as planned, and the structure, now in full service, is virtually free from cracks. The twin 34-foot diameter spillway tunnels through the left abutment were completed in April, including concrete lining, diversion tunnel plugs, and special diversion buckets at the discharge end of the tunnels. The reservoir filled rapidly during the early months of the year, and on May 24 reached a level 11 feet above the spillway crest (a depth of more than 400 feet at the dam) before the demand for water downstream caused a gradual lowering. On June 16, tests were conducted on the spillway with total discharges up to 18,800 cubic feet per second.

These tests were satisfactory and substantiated predictions made from model tests in the Norris laboratory.

After V-J Day, work was pushed on the construction of visitors' facilities at the dam. These include extension of the access road to the top of the dam, a visitors' building on top of the left abutment, and an inclined railway from the visitors' building to the powerhouse. Final grading and surfacing about the dam was substantially completed, and parking areas were constructed on both abutments. The access road crossing the dam will eventually be linked with the Great Smoky Mountains National Park system of roads.

In the reservoir area, all work was completed on the 30 miles of highway and 16 miles of railroad relocation, including one major highway bridge and two major railroad bridges.

MISCELLANEOUS DAM PROJECTS

At Watts Bar Steam Plant, the fourth and final 60,000-kilowatt-capacity steam generating unit was placed in operation April 8. The Fused Tri-calcium Phosphate Plant at Godwin, Tenn. was completed in May. At Great Falls Dam on Caney Fork, a tributary of the Cumberland River, an interesting asphalt and cement grouting program for the stoppage of water losses through the peninsula between the Collins River (reservoir level) and Caney Fork (below the dam) was started in July.

Miscellaneous construction operations during the year included channel widening below Fort Loudoun and Watts Bar Dams and a number of smaller projects for the operating departments.

BUREAU OF RECLAMATION PROJECTS

General.—Construction being carried on by the Bureau of Reclamation during the year continued to be restricted because of wartime regulations and shortages of labor, equipment, and materials. As stated previously, the Bureau has devoted considerable attention to surveys, investigations, and designs for units of the Missouri River Valley project. Because of the consideration which is being given by the Federal Government to the regional development of the great river basins, the work of the Bureau should be on an expanding basis for many years to come.

All-American Canal System—California.—Work was continued on the construction of 11 miles of the concrete-lined Coachella Canal, which will supply irrigation water to approximately 80,000 acres of land in the Coachella Valley Water District. Specifications were issued for the construction of an additional 11 miles of this canal, and it is anticipated that actual construction will be started early in 1946.

Altus Project—Oklahoma.—Altus Dam, a granite-faced concrete gravity type structure 95 feet high, to create a reservoir of 160,000 acre-feet capacity, was completed except for the installation of the spillway gates and bridge. The reservoir system, which includes several dikes and highway and railroad relocations, was practically completed. The Main Canal, 4.2 miles long, including a 2,200-foot concrete siphon of 10-foot 3-inch diameter under the North Fork of the Red River, has been completed, and construction of seven miles of the Altus Canal is in progress.

Boisé Project—Idaho, Anderson Ranch Dam.—The principal work on this project was placing earth embankment and constructing the outlet works for diversion purposes. By the end of October, approximately 6,900,000 cu. yds. of earthfill had been placed, bringing the dam embankment to 300 feet above foundation and within 142 feet of the crest. The dam will create a reservoir with storage capacity of 500,000 acre-feet for supplemental irrigation of lands at present inadequately supplied, also for future power development and flood and silt control.

Boulder Canyon Project—Arizona-Nevada.—Tunnel and river channel improvement below Boulder Dam found necessary during the year is now in progress. It includes extending the four 50-foot outlet tunnels, dredging the river channel for several thousand feet below the tunnel portals, removing material from the canyon walls, and relocating a stretch of road.

Buffalo Rapids Project—Montana.—Construction of two units of this project, each consisting of a pumping plant and a canal system, was completed during the year. The Shirley Unit provides irrigation for 5,300 acres and the Terry Unit for 2,800 acres.

Central Valley Project—California.—Shasta Dam and power plant were completed and accepted on June 20; three 75,000 kv-a generating units, three 100 ft. by 28 ft. drum gates, and 14 spillway outlet valves remain to be installed. No work was done at Keswick Dam and power plant. Construction of the 37-mile Madera Canal was completed and irrigation water was delivered during the 1945 irrigation season to the Madera Irrigation District for replenishment of underground water and surface irrigation. This district has about 83,000 acres under irrigation, largely by pumping from the underground supply. A beginning was made on the 156-mile Friant-Kern Canal by letting a contract for 5.6 miles, which was 15 per cent complete at the end of the year. Preparations were made to install crest gates on Friant Dam.

Colorado-Big Thompson Project—Colorado.—Alva B. Adams Tunnel through the Continental Divide, which is 13 miles in length, was holed through during 1944 and is now being lined with concrete. The construction of Shadow Mountain Dam and dikes continued. A connecting channel between Grand Lake and Shadow Mountain Lake was completed.

Columbia Basin Project—Washington.—Construction work on this project during 1945 consisted mostly of work preliminary to repairs to the spillway bucket, such as construction of the dry dock for the inspection caisson, fabrication of the caisson, installation of eight large needle valves in the generator pits of the right powerhouse for the purpose of bypassing water during bucket repair operations, stabilizing the river banks downstream from the dam, and channel dredging of the river downstream from the dam. Work preparatory to installing the last three main generator units in the left power plant has been initiated. Two 75,000 kv-a generating units are being dismantled for return to the Shasta Unit, Central Valley Project.

Davis Dam Project—Arizona-Nevada.—The construction of 140 miles of 161 kv wood pole transmission line from Parker Power Plant to Phoenix, Ariz. was practically completed. This line will deliver power from the Parker Power Plant to Phoenix until such time as the Davis Power Plant and transmission system are completed.

Deschutes Project — Oregon. — Progress was made on the construction of Wickiup Dam and the clearing of the reservoir area to create a reservoir of 185,000 acre-foot capacity. Construction of the North Unit Main Canal to a point sufficient to provide water for the first 20,000 acres to be irrigated will be completed by the end of 1945, with the exception of the Crooked River Crossing structure. Construction of the laterals for the first 20,000 acres will be completed in time for the next irrigation season. The alteration work at Cove Power Plant for installing an additional 1,500 kw generating unit is well along. Field survey and topographic work preliminary to construction of the balance of the North Unit Main Canal and the remaining 30,000 acres of laterals to be developed for this area is under way.

Fort Peck Project—Montana.—The 20-mile Frazer-to-Wolf Point transmission line was completed in February, 1945. The 140-mile Fort Peck-to-Glendive line is in the final stage of construction and probably ready for operation by the end of the year.

Gila Project—Arizona.—Progress has been made on the construction of the works necessary to deliver irrigation water to 8,500 acres. This has been confined to the rebuilding and mortar lining of the canals and laterals in the 8,500 acre predevelopment area of the Yuma Mesa Division of the Gila Project.

Intake Project—Montana.—Construction of this project was completed during 1945. The project consists of a pumping plant located along the main canal of the Lower Yellowstone Project and canal laterals to irrigate 840 acres adjacent to the Lower Yellowstone Project.

Klamath Project—Oregon-California, Tule Lake Division.—The Modoc Unit of the Klamath Project comprised the development of 12,500 acres of land in the Tule Lake bed. Construction of three pumping plants, A, B, and C, was completed during 1945. Pumping plant A consists of three units of 33-1/3 cubic feet per second under a head of 20 feet; plant B, three units of 25 cubic feet per second under a head of 12 feet; plant C, three units of 33-1/3 cubic feet per second under a head of 12 feet. Work continued on the Modoc Unit extension to make available an additional 6,100 acres, comprising 84 per cent of the construction on the Klamath straits drain outlet and 53 per cent of the construction on two pumping plants, two units, each 100 cubic feet per second under a head of 10.5 feet; and structures on the Klamath straits drain outlet.

Mirage Flats Project—Nebraska.—Box Butte Dam, an earth dam approximately 5,400 feet long and 64 feet high, was practically completed during 1945. Dunlap Division Dam on the Niobrara River below Box Butte Dam was completed and canal and lateral construction was started.

Provo River Project—Utah.—Construction on the Salt Lake Aqueduct and the Provo Reservoir Canal continued throughout 1945 by authority of the War Production Board since these structures are a part of the Salt Lake City Municipal Water Supply System. The Salt Lake Aqueduct will ultimately carry municipal and irrigation water from the Deer Creek Reservoir (completed in 1941) on the Provo River to Salt Lake City, a distance of 41 miles. The Provo Reservoir Canal is a feeder canal in this system. The aqueduct consists of a 69-inch diameter precast concrete and steel pipe conduit and two principal tunnels, the Olmstead approximately 0.7 miles long and the Alpine-Draper approximately 2.85 miles in length. The Provo Reservoir Canal is of standard cross section, with three concrete siphon structures and one concrete flume. By the end of 1945, the status of construction on these features was as follows: tunnels completed; concrete pipe sections of the aqueduct 92 per cent completed; manufacture of steel pipe sections being expedited since release of material by WPB; the contract portion of the reservoir canal is 80 per cent completed.

Rapid Valley Project—South Dakota.—Construction of Deerfield Dam was nearly completed at the end of 1945. This dam is an earth and rock fill dam, approximately 128 feet high and 830 feet in length, creating a storage reservoir of 15,000 acre-feet capacity for supplemental water supply for irrigation and municipal use by Rapid City, South Dakota.

Rathdrum Prairie Project—Idaho.—The Post Falls Unit of Rathdrum Prairie Project will supply irrigation water for approximately 3,500 acres. A pumping plant located on the Spokane River a few miles west of Coeur D'Alene pumps water from the river 160 feet to a 42-inch diameter banded wood-stave discharge pipe line which feeds the project canal. Construction of the pumping plant was started during March, 1945, and was completed in July. Work on the canal and lateral system was started in May, and all construction will be finished early in 1946.

Tucumcari Project—New Mexico.—About 25 miles of the Conchas Main Canal were completed. The work included the excavation of approximately 2,100.000 cubic yards of material for the canal prism, 11 concrete siphons of 11 ft. 3 in. diameter; two 11 ft. 3 in. diameter tunnels with total length of 10,154 feet and miscellaneous minor canal structures.

Yakima Project — Washington, Roza Division.—Construction on this project continued throughout 1945; to serve ultimately 72,000 acres of land, 47,000 acres by gravity and 25,000 by pumping. The major work on this project was the completion of the 95-mile main canal and laterals to place 42,000 acres under irrigation. Construction of laterals for 5,000 additional acres in progress; also preliminary survey work on the 25,000 acres to be served by 16 or 17 pumping plants located at appropriate points along the main canal.

CORPS OF ENGINEERS, U. S. ARMY

While not in the province of this review, mention should be made here of the magnificent war accomplishments, at home and abroad, in combat and behind the lines of the Corps of Engineers. These accomplishments only add luster to an already notable history. As far as civil works construction is concerned they, as well as other agencies, have been busy with investigations and surveys in connection with the proposed Missouri River Valley development. Their current civil works projects already under construction remained at a virtual standstill during a major portion of the year in accordance with existing Federal policies. The dam and reservoir projects on which construction work was performed are the Denison, Norfork, and Barker projects. Descriptions of those projects are contained in the following paragraphs.

Barker Dam—Texas.—The dam is located on Buffalo Bayou west of Houston, Tex., and south of Texas State Highway No. 73. It is an impervious earth-fill structure 72,844 feet long rising to a height of 37 feet at its maximum section across Buffalo Bayou. The outlet works through the dam consist of seven precast concrete culverts eight feet in diameter, two of which are equipped with control gates. The dam and rectification of the Buffalo Bayou channel below the dam were essentially completed during the year.

Norfork Dam — Arkansas.—The dam is located on the North Fork River about 4.8 miles above its confluence with the White River near Norfork in Baxter County, Arkansas. The project includes the construction of a concrete gravity dam 2,624 feet long and 220 feet high forming a reservoir with a storage capacity of about 732,000 acre-feet for flood control and about 1,251,000 acre-feet for power generation and stream flow generation. The dam consists of a spillway section 508 feet long located above the existing river channel and two non-overflow sections contiguous thereto, which extend to the abutments. Because of war conditions, temporary concrete bulkheads were installed on the spillway section in place of the proposed steel tainter crest gates. Gate-controlled conduits through the base of the spillway section provide for regulating and discharging flood flows. Four pinstocks for power generation are also included. The dam and powerhouse were completed in March 1945 under a continuing contract, and one 35,000 kilowatt power generating unit was placed in full commercial operation. Work performed during the year included the excavation of 61,891 cubic yards of rock, the pouring of 52.011 cubic yards of concrete, and the placing of 539,829 pounds of reinforcing steel.

Denison Dam (Lake Texoma)—Texas and Oklahoma.—The dam is located on the Red River approximately five miles northwest of Denison, Tex. The project provides for the construction of a rolled earth-fill dam 15,200 feet long rising 165 feet above the stream bed and creating a reservoir with a storage capacity of 2,690,800 acre-feet for flood control, 1,813,800 acre-feet for power, and 1,211,100 acre-feet for silt deposit. During the year, the construction of access roads and transmission lines to the powerhouse was completed. The installation of powerhouse equipment also was completed with the exception of certain items deferred as a result of the war emergency. Highway, railroad, and utility relocations were continued, including the construction of necessary bridges.

LOCAL PROTECTION PROJECTS

Miscellaneous.—Construction work was initiated on a channel improvement and levee project along Lytle and Cajon Creeks, California, to protect the San Bernardino and Colton areas and vital Pacific coast railroad facilities from flood damage. Work was continued on the improvement of the Vermilion River, Louisiana, the local protection projects at Tulsa, Oklahoma, the East Peoria Drainage and Levee District, Illinois, and Jeffersonville and Clarksville, Indiana, as well as on the large projects authorized separately for the alluvial valley of the Mississippi River and for the Sacramento River, California. Construction work was resumed on four projects in the Ohio River Basin, which were suspended during the war, to provide local flood protection for the cities of Evansville, Ind.; Paducah, Ky.; Portsmouth-New Boston, and Cincinnati, O. The raising of existing levees along the Mississippi River between Alton and Gale, Ill. was also resumed.

Lytle and Cajon Creeks, San Bernardino County, California.—The project provides for the construction of approximately 48,000 linear feet of non-continuous earth-filled and stone-faced levees and groins between the canyon mouths of Lytle and Cajon Creeks and Foothill Boulevard, the construction of a concrete channel extending along the west branch of Lytle Creek from Foothill Boulevard to Warm Creek (a distance of 14,575 feet), the construction of an inlet section upstream from Foothill Boulevard, the use of the existing east branch of Lytle Creek to carry by-passed flood flows, and the construction of four railroad bridges over the concrete channel.

Tulsa and West Tulsa—Oklahoma.—The project provides for raising the existing left bank levee along the Arkansas River, connecting the discontinuous portions of the levee and constructing a leveed floodway up Black Boy Creek with levees and diversion ditches eastward and westward thereof, raising the existing Arkansas River right bank levee to the proposed grade, and constructing necessary appurtenant works. During the year, the levee from Sand Springs to Black Boy Creek was placed in operation. Construction of the Black Boy floodway structure was completed, including the excavation of 5,436 cubic yards of material, and the placement of 733 cubic yards of concrete, 68,000 pounds of reinforcing steel, and 42,198 cubic yards of earthfill. The levee from Black Boy Creek to Tulsa was completed by the placement of 428.311 cubic yards of fill material, 1,057 cubic yards of concrete, and 23,704 pounds of reinforcing steel. Construction of the two required pumping plants for this portion of the project was substantially completed. The West Tulsa levee was completed by the placement of 393,790 cubic yards of fill material, 2,108 cubic yards of concrete, 128,390 pounds of reinforcing steel, and the construction of 174 linear feet of concrete floodwall. Construction of the two pumping plants required for this portion of the project also was substantially completed.

FLOOD CONTROL WORKS

As a result of major flooding which occurred during 1944 and 1945, the Corps of Engineers carried on an extensive program of emergency flood control work to repair levees and other flood control structures damaged by the floods to restore protection to threatened areas. The great majority of the flood damaged structures were constructed by local people or organizations and were of insufficient grade and section to withstand the crest stages resulting from the large floods occurring on many of the principal streams throughout the United States. During the floods, personnel of the Corps of Engineers directed and executed pre-arranged programs of flood fighting and rescue work in the affected areas.

NAVIGATION AND RELATED PROJECTS

Floodgates on the Gulf Intracoastal Waterway — Texas.—Construction of sector type gates at the

Colorado River crossing of the Gulf Intracoastal Waterway to prevent shoaling of the waterway during times of flood on the river was completed. The structure consists of two gates with a control house, and power control and lighting system for each floodgate.

Mississippi River between the Ohio and Missouri Rivers.—Construction work to regulate and stabilize the navigation channel was carried on throughout the first half of the fiscal year ended June 1945, the work during the last half of the year having been curtailed owing to high river stages. Twenty-five permeable dikes totaling 9,355 feet in length, and two revetments, totaling 2,155 feet in length consisting of 2,155 squares of mattress and 584 squares of paving, were constructed at various localities along this reach of the river. Open river regulating works are now about 70 per cent complete.

Missouri River between Kansas City and the Mouth.—Three revetments, totaling 2,548 linear feet, were constructed at various localities along this reach of the river. The existing project was about 88 per cent complete at the end of the fiscal year.

Missouri River between Kansas City and Sioux City.—The construction of revetment totaling 945 linear feet and the removal of 549 linear feet of old mattress and dike structure in connection with this revetment construction was undertaken in this reach of the river. The entire project for this reach was approximately 81 per cent complete at the end of the fiscal year.

Missouri River at Fort Peck—Montana.—Construction of a 15,000 KVA substation was completed in the power plant, and operation of the 35,000 KW generating unit was continued during the major portion of the year, the total power production being 84,334,630. Permanent work on the entire project at Fort Peck is approximately 95 per cent complete.

St. Marys River—Michigan.—Construction of a 1,200-foot extension to Southwest Pier was in progress during the fiscal year; 1,435 cubic yards common excavation were removed, 51,179 cubic feet of timber framed, and other preparatory work accomplished including a temporary railroad siding approximately 2,500 feet long.

Work on the reconstruction of Brady Pier was in progress during the fiscal year, 61,200 cubic yards of common excavation were removed, 137,717 square feet of steel sheet piling and 21,392 linear feet of wood piling were driven and 10,280 cubic yards of cell fill were placed.

The improvement and reconstruction of South Canal was completed during the year. A cofferdam was constructed across the South Canal, 878 linear feet of new concrete pier wall along Southwest Pier was constructed; movable dam sill in South Draw and electric service tunnel across South Canal were removed to a depth of 27.0 feet below low water datum; 9.544 cubic yards of concrete were placed, 1,561 cubic yards of common excavation, and 15,571 cubic yards of rock excavation were removed.

BUILDINGS

In the construction of buildings as elsewhere in the construction industry war shortages created limitations to progress, and an important part of the industry's efforts during 1945 were devoted to the conception, design, and preparation of plans for future projects. However, it should be borne in mind that such progress in planning means the employment of a large group of relatively highly paid specialists—engineers, designers, draftsmen, etc.—so that planning alone involves a considerable capital investment.

CONSTRUCTION FOR MANUFACTURE OF ATOMIC BOMB

The buildings and miscellaneous structures needed for the manufacture of the atomic bomb were actually completed during 1943. Since those achievements were not announced publicly until the latter part of 1945, they are quite properly recorded in this review. The magnitude of the project is difficult to visualize. It has been stated that if the volume of construction involved in the project had been reported during 1943, it would have increased the total construction volume for that year by 20 per cent. Plants were built at three points—in Tennessee, in Washington, and in New Mexico. The *Engineering News-Record* states: "From a construction point of view, the plants for production of atomic bombs are equal in cost and labor to building a Panama Canal each year for three consecutive years." Certainly the construction industry was able to add fresh laurels to those already gathered through its war efforts.

BUILDING DISASTERS

Two disasters which occurred to notable structures during the year are worthy of mention. On July 28, an Army B-25, Mitchell bomber, lost in a fog, crashed into the center of the north side of the 102-story Empire State Building in New York City—the world's tallest. This was at the level of the 78th and 79th floor. Thirteen persons were killed but a remarkably small amount of structural injury was done. Damage was confined primarily to the failure of secondary members in the locality of the point of contact. Total damage was estimated to be from $500,000 to $600,000.

During the hurricane of Sept. 15, the three blimp hangars at the Naval Air Station at Richmond, Fla. collapsed. The collapse was accompanied by fire caused by large quantities of highly inflammable gasolines and other material stored in the buildings. These hangars were among the more notable structures built by the Navy during the war, being 1,000 ft. long, 300 ft. wide, and 180 ft. high. The interiors were free of columns. Total damage to hangars and contents was estimated to be in excess of $30,000,000.

Structural failures such as these are looked upon as catastrophes particularly by those directly concerned but without exception such failures are fruitful sources of knowledge. Invariably, engineering thinking is stimulated by such failures into new activity in its search for knowledge regarding the action of structures under conditions of stress.

UNUSUAL BUILDINGS

One or two examples of unusual buildings completed during the year will be of interest. There was built near Sacramento, Calif. a three-hinged arch truss airplane hangar of light weight cold-pressed steel. The building is 222 ft. wide by 200 ft. long with an arch span of 167 ft. 6 in. and a rise at the center of 46 ft. 6 in. There are two side lean-tos, each 21 ft. 6 in. in width. The structure was designed to permit easy dismantling and reassembly and is characteristic of a development which has taken place in the use of light weight cold-pressed steel sections during the last two or three years.

A double aisle three-hinged arch structure using glued laminated wood I-sections for the arch ribs was built on the west coast. The overall horizontal dimensions of the building are 248 by 740 ft. consisting of two aisles spanned by 120 ft. arches with a rise of 72 ft. The arch ribs are of I-sections built up of thin boards glued together and bent to conform to the shape of the arch axis. This is an interesting and notable example of a development which has occurred over a period of 25 years but which has been given increased impetus during the war period.

BRIDGES

General.—In a discussion of progress made in bridge construction cognizance should be taken of the types and methods of erection which have been developed by the army engineers for establishing temporary as well as more permanent river crossings. Notable examples are the Bailey bridge developed by a British engineer but widely used by all of the Allied armies, and the Demountable V-type Bridge developed in the United States. While the development of these military bridge types will no doubt improve the art of bridge building generally, their actual usefulness for peacetime purposes will be quite limited.

As was the case in 1944 bridge construction for civilian purposes was restricted by wartime requirements, shortages of materials and labor, etc. However, there are several examples worthy of inclusion in this review.

Pecos River Bridge.—Among the more interesting of this year's bridges is the new Pecos River Bridge which carries the Southern Pacific Railroad over the Pecos River near Langtry, Tex., just north of the Mexican border. It replaces an old wrought-iron structure built in 1891 which was for many years the world's highest railway viaduct. The new bridge is of the continuous cantilever type with two-span continuous trusses on either side supporting a suspended span over the main channel. The superstructure was designed for the heaviest conventional railway loading using medium carbon steel throughout. The overall length of the structure is about 1,400 ft.

Santa Fe Bridge at Topock, Arizona.—The Santa Fe Railroad placed in service a new double-track bridge over the Colorado River on March 7, 1945. The structure consists of simple span deck trusses on concrete piers which are supported on reinforced concrete cylinders carried through unstable material to solid rock formations. The main crossing is made up of two spans each 350 ft. in length with parallel chord Warren type trusses 46 ft. deep.

Harry S. Truman Bridge.—The Harry S. Truman Bridge, crossing the Missouri River at Kansas City, Mo. and opened to traffic on June 1, 1945, was built jointly by the Chicago, Milwaukee and St. Paul and the Chicago, Rock Island and Pacific railroads. The bridge has a total length of 2,633 ft. consisting of a series of simple truss spans and girder approaches with a notable 420 ft. vertical lift span to accommodate river traffic.

MECHANICAL ENGINEERING

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The year observed V-E Day on May 8, 1945 and V-J Day on Sept. 2, 1945 and with them the publication of many developments which were withheld by voluntary censorship during the war years. However, the technical publications throughout the year furnished the information for this section of The American Year Book.

EDUCATION AND TRAINING

The departments of Mechanical Engineering which had civil enrollments of about ten per cent normal were used by the Army and the Navy for the education of properly prepared draftees in specialized courses planned by them for the ground work for subsequent training given by the services in their own specialties. By the end of the year the number of civilian students increased through the return of discharged servicemen to resume their education or to begin their education in engineering.

The Engineering, Science and Management War Training program, beginning in 1942, was inaugurated in October 1940 as Engineering Defense Training and expanded into Engineering, Science and Management Defense Training in 1941 by including chemistry, physics, and production supervision. It completed its work in June 1945. From Dec. 9, 1940 to June 30, 1945 during which it reduced the shortages of engineers, scientists, and management supervisors, the program gave courses to 1,795,716 trainees at a cost of about $40 per course. These courses were given on college campuses and at other locations in or near industrial plants; they covered chemistry, physics, production supervision, draughting, map plotting, engineering, and inspection. The number of women of the total was 15.6 per cent, Negroes 1.4 per cent, members of the armed forces 2.1 per cent and veterans 0.8 per cent.

There were 42,568 different courses given by 227 institutions during the five years, most of which were for part time although 6 per cent of the enrollment was for full time courses. The engineering courses amounted to 75 per cent of those given to 75 per cent of the trainees, chemistry courses amounted to 3.0 to 2.1 per cent of the trainees, physics courses 2.0 to 1.8 per cent of trainees and production supervision 20.0 to 21.1 per cent of trainees. Industry and education have expressed their satisfaction in these courses for the preparation or upgrading of professional and semi-professional men required by the great expansion of production during the war.

A number of industrial companies are continuing and installing special courses in management education so that those taking the courses may coordinate the work of specialists.

EMPLOYMENT

The War Manpower Commission has arranged with 32,000 establishments for Veterans Apprentice Training Service to care for returning members of the armed services.

Civil employment reached 53,079,000 in 1943 while in 1944 it was reduced to 52,000,000, and the peak government civil employees reached 6,100,000 in December 1944. The total in civil, governmental, and armed services totaled 63,072,000. The total of all government employees was 28 per cent of the total number of gainfully employed persons. The civil employment of 51,500,000 in January 1945 is expected to drop to 46,000,000 by December.

POWER PLANTS AND EQUIPMENT

The total power developed in the United States is estimated at 1,250,000,000 horsepower of which 950,000,000 horsepower is used by automotive vehicles, 88,000,000 by steam locomotives and 72,000,000 by agriculture equipment. The prime mover capacity of power plants is 75,000,000 horsepower.

The Harbor Steam Plant for the city of Los Angeles designed to work in parallel with the hydro power plants of that region and take full load of 65,000 kw from a spinning load of 5,000 kw in case of hydro failure, was tested late in 1944 to obtain boiler performance on such a sudden increase of load. The steam demand for the 5,000 kw spinning load is 60,000 lb per hour and this must increase to 675,000 lb per hour. In the design, 25 seconds were allowed for the fans to speed up and the oil or gas burners to reach maximum output. In this time 3,500 cubic feet of water flashed into steam as the pressure dropped from 1050 psig to 937 psig which delivered at the rate of 630,000 lb per hour. This required the storage of 3,500 cubic feet of boiler water in large submerged drums in the setting and upper drums because of the swell of the water on this reduction of pressure. To insure dry steam, a steam drum was placed 15 feet above the normal water level. A steam scrubbing element was also used. To maintain circulation within the boilers the most direct flow was provided in the tubes. On account of temperature changes in the increase of load, expansion was permitted by overhead supports of superheaters and water walls. The burners were built so that the 10 burners in operation in stand-by condition using 4,300 lb of oil per hour could burn 69,000 lb per hour within 25 seconds.

The test showed that it took 12 minutes to establish normal conditions in place of 72 seconds from calculation. There was a 9-inch change in water level instead of a 7-inch change, as the pump regulator operated rapidly. The pressure drop and decrease in superheat were less than the expected amounts. The boiler efficiency was 88.4 per cent when the generator delivered 50,203 kw and 87.4 per cent at 74,037 kw. The 65,000 kw turbine is the largest 3,600 rpm tandem turbine built operating at throttle condition of 850 psi-900 F and will deliver a maximum of 75,000 kw. The consumption at turbine is 10,457 Btu per kwh and a net of 10,962 Btu per kwh.

The pooling of power during the war to increase the output for war industries was carried out by the utilities without the control of the Office of War Utilities. The five pools varied from 3,000,000 to 11,000,000 kw. These were the New York, New Jersey, and Maryland Pool, the South East Pool, the East Central Pool, the South West Pool, and the Pacific North West Pool. The East Central Pool, the South East Pool, and the South West Pool formed a super pool of 21,000,000 kw.

The largest automatic electric heated boiler for 150,000 lb of steam per hour, used 50,000 kw of energy. It is used at an alumina plant at Salem, Ore.

HYDRAULIC POWER

A 30,000 hp. impulse turbine under 1,150 feet head at Glenville, N. C. gave a peak efficiency of 88.9 per cent.

A new dam 118 miles up stream from Boulder Dam is being planned. This is known as the Bridge Canyon Dam and will form a lake 80 miles long impounding 3,700,000-acre feet. The power from this dam will total 750,000 kw, bringing the total of the Colorado River to 2,417,300 kw. The dam will be 736 feet high with a spillway capacity of 400,000 cfs.

GAS TURBINES AND INTERNAL COMBUSTION ENGINES

One of the theoretical papers of the year proposes the use of air shunted from the compressor discharge of a gas turbine around the combustion chamber for the cooling of the parts of the turbine rotor which are subject to both high stress and high temperature. This air is delivered by one group of nozzles immediately following the hot nozzles and supplies compressed but cooler air than that from the combustion space. Such cooling permits the use of air at 1,500 F from the main nozzle. With 75 per cent recuperation and a pressure ratio of 6., the estimated thermal efficiency is 36½ per cent while with all gas at 1500 F it would have been 38 per cent and with 1200 F gas, 31 per cent. This analysis was made for a unit made of a two-stage compressor with intercooler, a generator for heating, a high pressure and a low pressure turbine, and a recuperator.

A gas turbine laboratory has been planned for the Massachusetts Institute of Technology to be operated by aeronautical, chemical, mechanical, and metallurgical engineers to study all phases of design and application of this prime mover. It will be equipped with a supersonic wind tunnel and equipment for research on compressor and combustion devices, jets and gas turbines under controlled conditions.

The report on 26 gas turbines used on the Houdry gasoline units indicates that 20 of these have been built by Allis Chalmers and six were imported from Brown Boveri and Co. These handle 23,000 or 40,000 cfm except one which uses 60,000 cfm. The 26-stage axial compressor discharges 40,000 cfm at 45 psi. This is supplied at 950 F to a five-stage reaction turbine developing 6200 hp at 5180 rpm. Stainless steel turbine blades and nickel steel compressor blades are used. The experiences of the Sun Oil Company on several units from 1936 to 1943 covers 9,258 operating days out of 9,437 days. The 179 days lost were owing to 28 bearing failures (101 days), six lubrication failures (28 days), four blade failures (19 days), one air seal failure (3 days), three explosions (12 days), and three miscellaneous failures (16 days).

The Elliott Company, in cooperation with the U. S. Navy, has developed and built a 2500 hp gas turbine for naval service. This was formally demonstrated on July 23 and 24, 1945. In this prime mover weighing 30 lb per hp and requiring 3½ cubic feet per hp and with an overall efficiency of 29 per cent, 12,500 cfm of air is compressed to 43 psi and 300 F in a Lysholm screw compressor and then intercooled before entering the high pressure screw compressor which delivers air at 96 psi to the regenerator heated by exhaust gases. After passing through the high pressure combustion chamber the air enters the high pressure turbine at 1230 F in which it develops power for the low pressure compressor by expanding to 53 psi. It then passes through the low pressure combustion chamber where it is heated to 1207 F for the low pressure turbine. The low pressure turbine generates 5,000 hp by expansion of the air to a point slightly above atmospheric pressure of which one half of the power is used for the high pressure compressor, leaving 2,500 hp for ship propulsion. The exhaust of this turbine is passed through the regenerator which heats the compressed air and is exhausted to the ship funnel at 400 F.

The temperatures and the temperature ranges in adjacent parts have presented many problems of expansion, corrosion, fatigue, heat transfer, heat shielding, and cooling. The arrangement of the unit with two independent compressors, each driving one of the compressors and two combustion chambers, has been determined by the need for variation of output. By regulating the fuel flow to the high pressure combustion chamber, the speed of the low pressure compressor and thus the amount of air taken in by the screw is varied while the temperature in the entrance of the main low pressure turbine is maintained constant by regulators.

The new Cooper-Bessemer tubocharged Diesel Engine has a thermal efficiency of more than 40 per cent compared with the former maximum of 36 per cent.

The Worthington Co. and the Cooper-Bessemer Co. have continued the development of Diesel Engines in which oil or gas may be used for fuel. The change from one to the other can be made in a single revolution of the engine.

BIG INCH GAS LINE

A 24-inch pipe line of 1,180 miles with 85 miles of 20-inch pipe from a dehydrating plant at Corpus Christi, Tex. to Cornwall, W. Va. has been completed for the delivery of fuel gas into existing gas systems. It follows a great circle route and contains seven compressor stations spaced at intervals of 85 to 170 miles. The capacity is 207,000,000 cubic feet per day but it may be boosted to 262,000,000 cubic feet. River crossings are made by suspension of the line although the Mississippi is crossed by using an existing bridge. The gas is dehydrated to a new point of 30 F and is compressed to 750 psi for delivery to line in which it is reduced to 401 psi on reaching the next compression station. These stations have 9-1000 angle type compressors.

ARMY WATER SUPPLY

For the drilling of wells for the water supply battalions in the war zones, groups of men were trained near Kingman, Ariz. for periods of eight weeks for experienced drillers and of 32 weeks for inexperienced men. Both rotary and percussion drills were used. Although the former type is more expensive, it was to be used in new terrain as it does not tend to freeze in striking shale, clay, or quicksand. The drill rig was driven by a 35 hp—1600 rpm gasoline engine. To remove loosened material a fluid mud was pumped in during drilling and this served to seal off porous sections of the well. After the drill is removed, a screen is set, the well is cased, washed out, baled out, and the deep well turbine pump is set. In usual cases it took about five hours to complete a well which would pump enough water for one division.

HEATING AND VENTILATING

The use of radiant heating is increasing. Tests indicate that rugs on floor panels and pictures over wall panels do not affect the efficiency of the system. They also indicate a reduction of 35 per cent in the amount of heat supplied to the system although there is an increase in the heat loss to the ground. At Purdue University, a "field laboratory" has been erected to obtain data from full size equipment to give a more accurate evaluation of present design methods.

The electrothermic system of heating and air conditioning uses storage tanks with rock or water storage so that heat from electric energy may be stored from off peak power for use during the remainder of the day.

To test the application of sun heat, two full scale test houses have been built beside each other on the campus of Purdue University. In one, two-thirds of the south wall is built of glass; the other house is of standard construction to act as a control.

AIR CONDITIONING

Air conditioning has been found essential in 200 industries, including those for chewing gum, drugs, glass, paper, printing, synthetic rubber, and textiles.

The air conditioning of flat top windowless black-out types of buildings for war contracts has shown that such structures cost less per square foot of manufacturing space for heating and air conditioning than conventional monitor top factory buildings with windows. It has shown that men can work to closer tolerances without the etching of parts or gauges by perspiration through humidity control. Good lighting makes more accurate guage readings possible, while uniform temperature makes gauge readings the same at all locations. At one plant of 1,000,000 square feet the heating, ventilating, and air conditioning cost $250. per ton, a total of $1,120,000. Of this amount 20.0 per cent was for refrigeration, 29 per cent for air handling, 20.4 per cent for sheet metal, 5.85 per cent temperature control, 4.5 per cent for heat exchanges and cooling towers, 6.85 per cent for piping, 2.15 per cent insulation, 0.52 per cent for instruments, 0.35 per cent for painting, 10.4 per cent freight, installation, supervision, overhead, profit and insurance.

The questionnaires answered by a large number of supervisors indicated an improvement in health, increase of efficiency and job satisfaction of employees, a reduction in absenteeism and labor turnover, a reduction in time per job, and a reduction in maintenance owing to absence of dust. There were some complaints, the most frequent was that of causing colds. Ninety-five per cent of the questionnaires indicated that this plant was an improvement over the conventional form of buildings, and 92 per cent stated that they would prefer to work in an air-conditioned plant.

A new laboratory for the General Electric Company of 200,000 square feet of laboratory space with an auditorium for 300 persons, a dining room, and conference rooms is to be built with air conditioning throughout.

The Bell Bomber Plant at Marietta, Ga., the world's largest bomber plant, is air conditioned to 85 F and 50 per cent R.H. requiring 82 units using 7524 tons of refrigeration driven by 7,550 hp of motors. There are 97 compressors, 82 supply fans, and 91 evaporative condensers using 1,435,000 cfm of air.

REFRIGERATION

The requirements of the Army and Navy were met by a number of storage plants during the year. The San Francisco Quartermasters Market Center is 187 feet by 610 feet and contains 11 rooms 63 x 137, three held at 30 F and eight at 10 F. It handles 100 car loads of foodstuff a day, including 80,000 carcasses of meats.

A refrigerated concrete barge for the South Pacific is 265 feet long with 48-foot beam. It contains 122,000 cubic feet of storage space. The deck house rooms are held at 32 to 36 F, while the holds are at 10 to 15 F. It is equipped to produce 500 gallons of ice cream per day and five tons of ice. A 400 Diesel engine-generator furnishes power for cranes and unloading equipment.

In the field the Army has one-ton gasoline driven ice machines. In the battle area 1½-ton refrigerating units with 52 cubic ft. boxes, weighing 3,000 lb, may be dropped from gliders or airplanes. Each Army mess hall is equipped with walk-in boxes of 6 x 6 to 10 x 30 area, while thousands of reach-in boxes of 20 to 80 cubic ft. are used in various locations. They have also refrigerated ships, railroad cars and warehouses. Most warehouses are prefabricated with 6″ walls of capacity of 615 cubic ft. to 1760 cubic ft. The refrigerating units are air cooled and driven by gasoline engines. These are mounted on semi-trailers. Other semi-trailers of 14,700 lb weight have a pay load storage of 10,000 lb and are held at 15 F in an air temperature of 120 F. Some of these are used for refrigeration of blood plasma, photographic supplies, and ice cream. The permanent warehouses are 20 x 52 x 52 and 20 x 100 x 13.

The largest Navy refrigerated warehouse in the South Pacific will store 2,500,000 pounds of meat at 10 F, 2,200,000 lb of fruits and fresh vegetables at 40 F, and 300,000 lb of dairy products with an outside temperature of 130 F. This contains 264 refrigerating units. The Navy ration is 1.31 lb of refrigerated meat and dairy products per day with 2.4 lb of fresh fruit and vegetables.

The Stratosphere Chamber at the Aberdeen Proving Grounds contains a steel vacuum chamber that can be brought to —70 F and 2.2 psi absolute pressure in 12 minutes to simulate conditions at 40,000 feet elevation. This is a drop of 140 F in temperature.

The world's largest low temperature refrigerating system for the laboratory of the National Advisory Committee on Aeronautics at Cleveland, operating between 59 F and —80 F, requires 7,500 tons of refrigeration. The equipment is driven by motors aggregating 21,000 hp.

RAILROADS

At the beginning of the year seven major railroads completed 30,000 miles of test runs on high frequency radio communications for train control for which the Federal Communications Commission has allocated several channels for this service. Throughout the year many roads added centralized train control to sections of their roads, increasing safety and movement of trains.

One hundred plywood box cars were built and 1,000 ordered for one railroad, saving 20 tons of weight per car. The first 50-ton aluminum box cars were reported in 1945.

A number of railroads altered older locomotives by raising pressures, rearranging running gears with roller bearings for main blocks, remodelling counter balance, and increasing capacity of tenders so that fuel consumption has been reduced, draw bar pull increased, and length of run between water and coal station increased.

The tests of the geared turbine locomotive of the Pennsylvania Railroad have shown it to have a higher traction effort than a piston driven locomotive of the same boiler capacity throughout its full range of speed and higher than a 6,000 hp Diesel locomotive above 35 mph. The turbine locomotive weighs less than the Diesel per hp (152 lb vs 200 lb). By the use of smaller wheels a larger boiler may be used, and its smaller wheel base permits the use of a larger grate. The torque on the shaft is uniform.

The C. and O. R.R. is adding a steam turbine electric drive locomotive to its equipment of 4,000 kw capacity.

On June 30, 1945 there were 3,202 Diesel locomotives in service. Of the 2,791 used by Class 1 railroads, 642 in road service had a total of 2,047,590 hp and 2,149 in switching 1,725,038 hp. During the first six months of the year, 270 new locomotives were added, 25 of which had capacities of 5,400 hp. The New York, Susquehanna and Western Railroad has abandoned its 41 steam locomotives and replaced them by 6-1,000 hp switching Diesels and 10-10,000 hp road Diesels on its 41 miles across New Jersey.

The welded boiler which was permitted the Delaware and Hudson R.R. in 1938 has developed no cracks or flaws in any of the welded seams or in the parent metal. It was originally operated for six weeks as a stationary boiler, then as a locomotive with examinations every three months for a year, then at six months for a year. Subsequently there have been five yearly inspections. During this period the Interstate Commerce Commission permitted 215 partially welded boilers, and it has now granted permission for one fully welded boiler to the D. and H. for a 4-6-6-4 locomotive and to the N. Y. Central for a 4-6-4 locomotive.

The use of power switch control, car retarders on tracks, and telephonic communication has speeded up the time use in classification yard for separating cars by 25 per cent.

Steam-air jets to consume smoke have been added successfully to locomotives of 18 railroads.

The trial runs for three years of the four-cylinder 4-4-4-4 type locomotives of the Pennsylvania R.R. has led to the construction of 50 of the locomotives. Twenty-five have been ordered from the Baldwin Locomotive Co. and 25 will be built by the railroad. These locomotives will run between Harrisburg, Pa. and Chicago, a run of 713 miles with one refueling at Milbrook, O., 385 miles from Harrisburg. The first engine ran with a 1,000-ton train and attained a speed of 100 mph although designed for 880 tons at this speed. They have made runs of 1,800 miles. The use of four cylinders, each driving two axles, permits small bores, reducing the piston thrust, and eliminates heavy complicated side rods and moving parts. The strokes also can be shorter with lower piston speeds and higher m.e.p. These locomotives, like other new ones, weigh almost 500,000 lb.

MANUFACTURING

The Pennsylvania Railroad is forming some locomotive cylinders by welding to replace the customary casting. By efficient tool control at such plants as those of General Motors, waste time and material have been reduced. Correct tools with proper sharpening are always ready for exchange of dulled equipment. Induction heating by low frequency and high frequency currents for surface hardening, heating, and brazing was extended during the year.

Shot peeding by increasing the fatigue resistance of a thin surface layer of material five to 10 thousandth of an inch in thickness places the outer fibers in compression and the inner ones in tension so that the life of hypoid gears of General Motors Corporation have been increased 600 per cent, aircraft crank shafts 900 per cent, steering knuckles 475 per cent, transmission shafts 520 per cent, and helical springs 1370 per cent.

Machine parts for overseas shipment have received two coatings of a molten, semi-transparent, pliable, highly viscous synthetic plastic and mineral oil which is easily removed when the parts are utilized.

MANHATTAN (ATOMIC BOMB) PROJECT

The Manhattan Project has yielded, in addition to its weapon of destruction, 5,000 new products or procedures for peacetime application. Among those of interest to the mechanical engineer are improved protective methods of combatting toxicity in industry, new methods of protecting metal from corrosion, new coolants, new types of heat exchangers and piping, new pumps and packing, and new control instruments and procedures.

MATERIALS

Flotofoam, a synthetic plastic, is made of light weight by foaming so that when solidified it weighs ¾ lb per cubic foot. It is used as a heat or sound insulation. Fiber glass, another insulator of earlier development, weighing 6/10 lb per cubic foot, has been used extensively as a fabric in the Army and on ships in the form of boards and blanket rolls or batts. At times it may be so made that it weighs 1.5 to 9 lb per cubic foot. It may be used at 1,000 F. A heavier insulator "foam glass" weighs 10½ lb per cubic foot. It is used in the flexible sheet form, ½-inch thick on aircraft. In addition, it may be used for air filters, retainer mats in storage batteries, and to protect underground pipes from corrosion and electrolysis. It may be used for insulation in electric apparatus.

An aerated latex or synthetic rubber, known as airfoam, is used for seat cushions. The load carrying capacity of this substance is regulated by the amount of aeration.

Staypak is the name given by the U. S. Forest Products Laboratory to a plywood which has been treated with high moisture content during its compression to a point which causes the flow of the legrim or cementing material between the fibers. It will swell appreciably when released but return to its compressed thickness on drying to its original moisture content. The plywood is made up of veneers with glue, compressed to 2,000 psi to make a heavy wood of 1.39 sp g, and of high impact and tensile strength. Its bending modulus of rupture is 20,000 psi. It may be used for propellers, spars, fitting, wood handles, mallet heads, pulleys, silent gears, jigs, dies, and water lubricated bearings.

The steel making capacity of the United States increased from 82,000,000 tons in 1940 to the present 95,000,000 tons per year, and during the first part of the year production was from 91.5 to 96.5 per cent from weekly reports except in the first two weeks of February in which production fell to about 87½ per cent because of the severe cold weather. The coal strikes of the early fall cut production to 65.5 per cent for the week of Oct. 16 and by Oct. 30 it had risen to 74 per cent.

High strength alloy steels, which may be used in structural parts at 1,000 F to 1,600 F, were developed by the Allegheny-Ludlum Steel Company.

Inoculants of alloys of various percentages of Si, Ni, Mn, Al, Ti, Zr, Cr and C are added to the ladle of grey cast iron to reduce chill and promote machinability without reducing strength and roughness. The amount added is one to two per cent of ladle charge, and this material is not believed to alloy with the cast iron. It increases the strength but reduces the defection of the metal.

Steel castings have been made by the Thermit Process "Thermocast," yielding 25 lb of steel from a mixture weighing 45 lb. The tensile strength of the casting is 70,200 psi with a yield point of 39,250 psi. The elongation in two inches is 30.1 per cent, and the reduction in area 51.2 per cent.

Sponge iron, the manufacture of which was thought would care for the lack of scrap iron, was made at an experimental plant at Warren, Ohio, costing more than $1,000,000. The results from 2,000 tons charged into this pilot plant have not indicated the probable cost of producing this material.

Pliobond is an all-purpose adhesive cement developed by the Goodyear Tire and Rubber Co. for metals, plastics, fabric, ceramic ware, vulcanized rubber, paper, glass, plaster, wood, and concrete. It is applied by a brush, sprayer, or roller coater.

Meltbond, an adhesive developed by the Vultee Aircraft Corporation in the form of a liquid, paste or tape, is of four types, differing in pressure and temperature for curing. This adhesive is used for the leading edges of wings and between aluminum and steel to prevent electrolysis or between aluminum and magnesium to prevent corrosion.

Boron carbide B_4C made by the Norton Co. under the name "Norbide" is an abrasive next to diamond in hardness. It is lighter than aluminum and its moulded strength is 30,000 psi.

Cerrobend, a material consisting of 26.7 per cent lead, 13.3 per cent tin, 10 per cent cadmium, and 50 per cent bismuth, is used in temporary tooling for dies and other tools by the Lockheed Aircraft Corporation. It melts at 160 F and below 215 F. It has a tensile strength of 6,000 psi, 200 per cent elongation, 9.2 Brinell hardness. It is malleable but brittle to hard blows. It expands on cooling and is used to fill pipes which are to be bent as it may be removed by melting in boiling water. A punch of this material weighing 12,000 lb was used with a similar die of 10,000 lb in a drop hammer to form 1 to 100 parts.

Cast iron classes of 20,000 psi to 60,000 psi have now been extended to

80,000 psi by improved melting, alloys, and heat treatment, while cast steels by melting technique, control of inclusion, and the use of deoxidizers have now been raised to 150,000 psi and a yield point of 125,000 psi. The chrome-molybdenum types with heat treatment have been raised to 205,000 psi. A new heat treated low carbon cast iron has a strength of 100,000 psi. It is more heat resistant than the former cast iron and may be operated at 650 F and with 2 per cent chromium to 1,400 F.

TESTING

The Buffalo Forge Co. has built a test pit of reinforced concrete to test centrifugal fans to destruction. It may be evacuated to one-three thousandth of an atmosphere so as to reduce windage losses and make it possible to spin a fan which would normally require 1,000 hp by a one quarter horsepower motor. The pit is similar to one used by the General Electric Co. for testing supercharges at 60,000 rpm. This pit, which is 72 inches in diameter and four feet deep, is lined with a laminated wood shield to receive broken parts. It is equipped to test dynamic balance, and with cathode ray strain gauges as well as stroboscopic lighting for visual study through a glass window in the cover.

Plungers and bushings for the fuel injection system are tested for accuracy to five millionths of an inch by air gauging equipment in which the master gauges are checked at hourly intervals. There are 16 sizes of plunger and bushing diameters which vary by five millionths of an inch.

To study the stresses in ruptured parts, grid lines of 10 per inch to 100 per inch are photographed on the part, and these lines are then studied after rupture to determine strain.

At Kure Beach, Wilmington, N. C., the testing of metals and surface finishes exposed to weather is being carried out as a joint project of the International Nickel Corporation, Carnegie Illinois Steel Co., Dow Chemical Co., and the Ethyl Dow Chemical Corporation. There are 15,000 specimens exposed to weather and spray from breakers on samples of different metals, on metals joined with others for galvanic action, riveted and bolted joints, bent pieces which are strained, on plates treated chemically or with paint or enamel protection. Some specimens are immersed in sea water.

The Association of American Railroads has made a voluminous report on 900 tests to study the static and dynamic effect on high speed steam and Diesel locomotives over short steel spans at from five mph to nearly 100 mph. Locomotive equipment and deck girder and beam bridges of different railroads were used. The lower speed was assumed to give static loading. The instruments measured strains to 1/150,000 inch occurring at 500 cycles per second. The actual stresses from wheel loads were 90 per cent of those computed for open track and 80 per cent for ballasted track. The effect of roll of the locomotive, speed, hammer blow, and track irregularities were studied. Roll of the locomotive increased the stress on one track with corresponding decrease on the other track. There was a critical speed for each locomotive at which the effect of counterweight was a maximum. This occurred at 20 to 40 mph for Diesel locomotives and at 30 to 50 mph for steam locomotives.

For testing surface finish of metal surface, the Bureau of Standards proposes to apply a thin strip of plastic film by pressure from a roller to the surface which has received a coat of solvent. After setting, the film is stripped and oscillated at 300 times per minute before a restricted light beam passing to a photoelectric cell. The pulsating voltage is recorded, and from calibration it is reduced to indicate finish. The tests of duplicate replicas show close agreement, and curves from different finishes are quite similar to those from other profilemeters.

INSTRUMENTS

The strobomeca, a spring driven stroboscope slightly larger than a baseball, has been developed to examine moving parts and to check speeds. It has been developed for ranges of 500 to 8,000 rpm and 1,000 to 16,000 rpm with a variation of 2 per cent of true speed.

A balancing machine has been built by Olsen to test Diesel Crank Shafts weighing 5,800 lb and of 15′-7⅝″ length.

The pressure graph is a linear pressure time curve indicator for internal combustion engines, pumps, air lines, and other similar structures which records static or dynamic pressures by means of pickup stations in cylinder or pipe. The pickup is amplified and transmitted to a cathode ray oscillograph for indication or recording.

Fluoroscopes, used for scanning manufactured parts, do not indicate small defects which are shown on radiographs, but when a rotational scanner is used medium and large defects not detected radiographically are clearly indicated.

Electronic inspection gauges are used in many plants using photoelectric cells to measure differences from gauge size. To check gauges at other plants a comparator enlarges contours 100 times for checking to two millionths of an inch.

ELECTRICAL ENGINEERING

By Harry Sohon
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NEW INSTALLATIONS AND PROJECTS

The South Carolina Power Company is planning to build a steam plant on the Ashley River north of Charleston. The plant will contain a 25,000-kva hydrogen-cooled generator. A single boiler will be used to produce 230,000 pounds of steam per hour at 850 psi and 900°F. Either coal or oil can be used for fuel. The project is expected to cost about $2,500,000.

The Bonneville Power Administration is to erect a high-capacity power transformer bank. There will be four 50,000-kva self-cooled transformers. These transformers, when operated with auxiliary forced air, are rated at 83,333 kva; therefore, three transformers can be used to give 250,000 kva and one transformer will be available as a spare. The transformers are single-phase oil-immersed for connection to the high voltage side in wye to 220,000 volts. There are remote-control motor-operated tap changers that work under load. Provision is made to connect the low-voltage windings 66,700 volts delta, 115.500 volts wye, and 13.200 volts delta. The estimated cost of the bank is $772,434.

The General Electric Company has selected a site at Tiffin, O. for a small-motor factory. This factory has been planned for some time as a post-war project.

Kentucky Dam of the Tennessee Valley Authority at Gilbertsville was dedicated by President Truman after being in use for about a year. The President said that the TVA "is no longer an experiment but a demonstration." "It is easy to see that most of these commonsense principles can be applied to other valleys, and I have already recommended to the Congress that a start be made in that direction."

Pennsylvania Electric Company has started construction of a 30,000-kw steam generating station on the Allegheny River. It is two miles west of Warren, Pa. and is expected to cost $4,000,000. It will burn coal. There are to be two boilers furnishing steam at 850 psi and 875°F. The boilers will produce 370,000 pounds of steam per hour.

The Ohio Edison Company is erecting a new substation at Barberton, O. It is rated at 60,000 kva. A 138-kv steel-tower line is to tap the Cleveland-Akron line about two and one half miles from Barberton.

Grand Coulee Dam power house is receiving three more 108,000-kw generators at $2,000,000 each. The two 75,000-kw units built for Shasta Dam but placed temporarily at Grand Coulee will be removed to Shasta as soon as possible. This will give Grand Coulee nine units. Eventually Grand Coulee will have 18 units. This dam was planned to supply irrigation water to the Columbia Basin Project lands.

The Reclamation Bureau's Boisé project near Boisé, Idaho, is to continue work on Anderson Ranch Dam on South Fork of the Boisé River. The powerhouse will contain two 15,000-kva generators driven by two 18,500-hp hydroturbines.

The Pennsylvania Power and Light Company is planning to build an anthracite burning plant on the Susquehanna River at Sunbury, Pa. The plant will contain two 70,000-kw turbogenerators. Four boilers will be provided to produce steam at 1350 psi.

The Potomac Electric Power Company has a new 50,000-kw steam turbine generating unit in the Buzzard Point plant. The total installed capacity is now 270,000 kilowatts.

The Wisconsin Power and Light has added a 25,000-kw hydrogen-cooled 3600-rpm generator. It is driven by a steam turbine operating at 850 psi and 900°F. Steam is generated at 275,000 pounds per hour. A 20,000-kva substation is provided to connect to the system.

A 25,000-kw hydroelectric plant costing $900,000 will be constructed three miles below Shoshone Dam in northern Wyoming. This is the Heart Mountain power development of the Bureau of Reclamation.

The California-Oregon Power Company has been given a permit by the Oregon Hydro-Electric Commission for the development of a $4,000,000 power project. It is to be on the North Fork of the Umpqua River in southwest Oregon. A dam is to be erected near Toketee Falls to provide 40,000 kilowatts.

The Pacific Gas and Electric Company will electrify nearly all farms and rural areas in its territory by the end of 1946. The project is expected to cost $6,000,000 and includes 1,200 new projects and 10,000 new customers in remote regions.

CONTROL

The Commonwealth Edison Company in Chicago is using grid-controlled thyratrons to control the governor motor on a 35,000-kva turbogenerator at Calumet station. Originally relays were used. The relays were often closed for only two-second intervals and as a result the relays were breaking the starting current of the motor. This resulted in burning the relay contacts and the relays were then replaced by contactors, which proved inadequate and were replaced by thyratrons. The motor is a series motor with two field coils. The armature is excited through one field by two full-wave thyratrons for motion in one direction. Another pair of thyratrons, connected full-wave, produces motion in the opposite direction.

A novel constant-speed device for aircraft alternators has been developed. It is desirable to connect the alternators on the various motors in parallel. Since the motors do not always turn at the same speed it is necessary to have some variable ratio device so that the alternator will run at the same speed while the motor speed may vary over a wide range. The system may be described as follows: The driveshaft operates a cam that pushes the driven shaft through the cam follower. By using several followers spaced around the cam, the driven shaft is given several pushes during each rotation. The velocity ratio is varied by varying the cam eccentricity. The eccentricity can be varied continuously, therefore the alternator speed can be kept constant for any motor speed. A similar effect is also obtained by using a hydraulic pump driving a hydraulic motor. The control is obtained by varying the displacement of the pump.

The milling of ships' propellers has been speeded up and simplified by automatic machinery. One device in use consists of a probe that follows the surface of a model propeller. The deflection of the probe compresses a silverstat that results in accelerating the drive motor that positions the cutting tool; at the same time it moves the following probe support through a train of gears to provide the desired ratio. The compression of the silverstat produces a voltage variation that is amplified in a direct-current amplifier. The accelerating voltage is supplied as long as the silverstat is deflected from its initial position. Accurate positioning is, therefore, obtained by making the driving motor tend to return the silverstat to its initial condition at all times regardless of the position of the probe. It was necessary to incorporate anti-hunting circuits in the amplifier so that the action could be speeded up. It is a simple matter to change the scale so that propellers of different sizes can be made from the same model with a minimum of adjustment of the machinery.

The recent trend in power factor control is to use capacitors on individual motors, but the problem is one that requires some planning. Synchronous condensers to keep the power factor at any desired value may be used in a large plant. However, a synchronous machine might not be within the budget of a smaller plant, where, for financial reasons, it might be preferable to install static condensers. If the static condensers are placed across the line, the power factor will be corrected only for a definite load. At other times the power factor would be low, sometimes leading as well as sometimes lagging. It would be possible to switch part of the capacitors out of the circuit for light loads, but a better plan is to correct each motor by a capacitor that is permanently connected across the motor terminals. When this is done, care must be exercised that the capacitance is not too great. If the capacitance is too great, it may provide excitation to the motor while it is coasting to standstill after the line switch is opened. Under these circumstances a voltage several times the line voltage might be induced which may endanger the insulation, and result in damage to the connected load or to the shaft coupling. If several motors are considered as a unit for power factor correction with the capacitors connected to the common line, a study of the fault possibilities must be made to ensure that the line is not disconnected from the system with only one or two motors connected. Any such disconnection will result in the difficulties discussed above where individual motors are overcorrected. It is generally recommended that a few large motors operating on higher voltages be supplied with individual capacitors. The smaller motors that generally operate on lower voltages should be corrected for power factor as groups rather than individually. These recommendations are made to keep the cost of equipment within reason and also to keep the equipment diversified. High-voltage condensers are smaller; for diversification it is common to have six windings on a motor so that it can be used on two voltages (for example, 220 volts and 440 volts), whereas capacitors are made for only one voltage. Hence such a motor would require two sets of capacitors unless it were taken care of as a part of a group of machines.

An anticipator tube is used to improve temperature control of furnaces. Its action is analogous to the heater placed in the home thermostat. The anticipator contains two thermo-junctions placed back to back which are connected in series with the control thermo-junction in the furnace. During the heating cycle a heater in the anticipator tube is energized, which heats one junction in the tube faster than the other junction. This gives a voltage that tends to turn off the heating cycle sooner. In the home thermostat the heater heats the temperature-sensitive element above what the ambient would do and thus turns off the furnace early to allow the room temperature to rise to the desired value without overshoot. During the cooling cycle the heater is not energized, but owing to the design of the anticipator tube, one junction cools faster than the other, which in turn is made to turn on the furnace sooner. The device has been found to make considerable improvement in furnace temperature control. Variations have been reduced from 25°F in one case to 2.5°F and from 2.5°F to 0.4°F in another case.

SWITCHGEAR

A 400-cycle circuit breaker has been developed for aircraft use, on the 208 Y/120-volt system adopted by the Army Air Forces. The new breaker is electrically operated by remote control and will interrupt 3,800 amperes at altitudes up to 50,000 feet. It is designed to operate over a temperature range of —40°C to +60°C and in a humidity of 0.5 to 100 per cent. The breaker operates at any altitude from sea level to 50,000 feet and will withstand vibrations of 0.030 inch from ten to 50 cycles.

Another recent development is a high-capacity high-voltage oil circuit breaker that will work in three cycles. The breaker will interrupt a load rated at 3,500 megavolt-amperes. After the circuit has been interrupted, the breaker will close in less than 20 cycles, thereby reducing the service interruptions and in many cases keeping the systems in synchronism. The effect is obtained with two sets of contacts. One set of contacts generates a pressure by the arc that forms as the contacts part. This developed pressure forces the oil through the other contacts to break the electric circuit at that point. A further provision is made in the design of the pressure forming contacts so that, when a heavy current is to be broken, the arc will move to contacts that will not permit the pressure developed to increase too much. Too great a pressure might cause the breaker to explode. By this design the breaking operation is fast over the full range of currents.

An air-blast circuit breaker has been developed that will interrupt a load of 3.500 megavolt-amperes, for use on 138,000-volt lines. The design causes the moving contact to move into a region of high pressure where the dielectric strength of the air is high to help break the arc. It also causes an air blast to blow the ionized gases (generated by the arc) away from the contacts; this assists in breaking the electric circuit. The time required to interrupt the circuit has been reduced to three cycles.

A new type of rectifier relay has been developed for transformer protection. Where a relay is used to supervise a transformer circuit, the relay must be desensitized when the transformer is connected to the line, or the inrush current will trip the relay. Since the inrush current is a displaced sine-wave current and not a symmetrical current of large amplitude, it is possible to connect two relays to rectifiers so that the relays operate on opposite halves of the current wave. In the case of the inrush current produced by the switching operation, only one relay would operate and the contactor would stay closed. It would require a high symmetrical alternating current to operate both relays, which in turn would open the contactor to protect the transformer from overload.

RECTIFIERS

Portable rectifiers are used to supply direct-current power to ships in dry dock; this means that when a ship is unable to drive its direct-current generators, it need not be without power for lighting and other services. The rectifier unit contains ignitrons mounted on a 25-ton trailer, 25 feet long by eight feet wide. The rectifiers and transformers are fluid cooled. The rectifier has distilled water that carries the heat to a heat exchanger whence sea water carries the heat away. A similar system is used for the transformers. Pyranol carries the heat from the transformers to a heat exchanger where it is given to the sea water. Either 250/125 volts or 125 volts are available at 500 kilowatts. The supply to the rectifier is three-phase.

The great electric power now demanded for use in airplanes makes it more efficient to use an alternating-current generating and distribution system rather than a direct-current system. Some loads can be run directly on alternating current, but others require direct current. For these latter loads a line of selenium power rectifiers has been developed. Ratings vary from 100 to 800 amperes. The usual connection is to use six rectifiers connected in two wyes. The center of one wye is made the positive terminal and the center of the other wye is made the negative terminal. Individual rectifiers are made up of a stack of cells in series. The number of cells in a stack is determined by the alternating voltage. Efficiencies up to 85 per cent have been obtained.

HEATING AND WELDING

Infrared lamps are being used to accelerate baking or drying of industrial finishes. These lamps can be used to evaporate solvents that have exceedingly low flash points, hence may be utilized in cases where open flames would be unsafe. It is becoming the practice to enclose the lamps, that is, to use a drying oven. In some cases the oven is shielded from drafts that might cool the material; in other cases the ovens are enclosed so that the oven air is changed only in controlled amounts to remove the evaporated solvents.

In order to stop the flicker on lights supplied by the circuits on which a welder is used, a "voltage translator" has been adopted. This consists of an impedance added to the line through a transformer so that the welding current will produce a voltage rise in the lighting-load line just equal to the voltage drop in the feeder produced by the combined load. This means that the voltage regulation on the welder is extra large, but it causes no difficulty.

Most systems using high-frequency heating provide that the article being heated shall be placed in the oscillator circuit. Hence the oscillator frequency, output, and efficiency are all affected by the size, shape, and material of the item being heated. In some cases the oscillator is designed with a sufficiently generous power rating for enough heat to be produced under the most unfavorable conditions. Hence, too much power is likely to be available under other conditions. A recent trend is to use an automatic matching circuit that automatically adjusts the oscillator circuit to ensure constant power which makes the most economical use of the equipment.

When the arc in an arc furnace is being struck by short-circuiting the electrodes, the high reactive current taken ordinarily produces a decided drop in bus voltage with corresponding flicker being imposed on all equipment connected to the bus. In order to reduce this effect, a setup is being tried whereby a transformer is used to supply a capacitor bus from the main line through an adjustable reactor. The furnace is connected through the high-reactance furnace transformer to the capacitor bus. The operation is then as follows: when the electrodes are short-circuited the main source of reactive current is from the capacitance instead of from the line, and this reduces the flicker. The equipment set up as described has been found very satisfactory in practice.

DISTRIBUTION

In the matter of distribution the Union Electric Company of Missouri has interconnected the alternating-current and direct-current systems so that a common neutral conductor is used. Since direct and alternating currents are added as though they were in quadrature, this has resulted in a considerable saving of copper. For example, if an alternating current and a direct current of equal effective values are both carried by the same conductor, 30 per cent less copper will be required than if the two currents were carried by separate conductors. With less copper required in the cables, less lead will be needed for the sheaths. In St. Louis, as a result of this interconnection, 138,000 pounds of copper and 150,000 pounds of lead were salvaged from the distribution system.

Another advance in the distribution of power has been adopted by the Chicago, South Shore, and South Bend interurban line. It is a reserve, direct-current substation, mounted on two railroad flatcars. One carries the direct-current switchgear and two rotary converters. The other car carries the transformer and the alternating-current switchgear. The transformer is rated at 1575 kva, 60 cycles. The primary voltage is 34,600. The secondaries are in two 555-voltwye connections, one for each rotary. Each rotary generates 750 volts and, when the machines are connected in series, 1,500 volts is available for connection to the line.

A lightning protection problem has been met by the Northern Indiana Public Service with a novel solution. Lightning strokes to the 135-foot tower destroyed circuit-breaker bushings on an 11-kv substation. This was in spite of the fact that oxide-film arresters were used for protection. When an ordinary line-type pellet was put in parallel with the oxide-film arrester, the equipment was satisfactorily protected. The explanation advanced is that the low-capacity pellet type arrester takes care of the steep wavefront, and the oxide-film type takes the main lightning stroke.

The Public Service Company of Northern Illinois has inaugurated an unusual procedure for work on transformers. There is a chance that the transformer oil will absorb moisture while the transformer is open. To prevent this, the oil is heated so that it is warmer than the ambient. This is done with a hot-water heater that warms the oil in a heat exchanger. Pumps are used to circulate both the oil and the water through the heat exchanger. This system, in addition to keeping the oil free of moisture, makes it more comfortable for the men who work on the transformer, especially in cold weather.

It has been suggested that a lead-alloy cable sheath should be used. The increased strength and other desirable properties of the lead alloy should make it possible to use a thinner sheath with corresponding savings of material, weight, size, and cost. Such cables have been installed to test various alloys. However, it is now found that in some cases an aging takes place that makes the cable sheath lose ductility. Cracks appear which admit moisture and cause the cable to fail.

One distribution company reports that it has been possible to improve its service by using radio to direct its cars and trucks. The men are directed from headquarters where to clear up hazards and can call back for materials, and report on repairs and sectionalizing. A 25-watt a-m transmitter at headquarters and 15-watt transmitters in the trucks have been found satisfactory to cover 140 square miles of territory.

Kentucky Utilities Company has installed a 35-kv gas-filled cable near an airport at Lexington, Ky. This is to lessen the hazards to the planes that use the airport.

COMMUNICATIONS

The Rural Electrification Administration and the American Telephone and Telegraph Company are working together in planning new lines to service new areas. It is important to make interference a minimum on telephone circuits. The concerns have decided it will be more economical to plan ahead on a system basis rather than to work independently and then locate and correct mistakes after they have been made.

The General Electric Company has recently developed a "super-air" loudspeaker. The model tested can be heard from a distance of four miles over the water or two and one-half to three miles over the land. The sound intensity has been measured at +110 db at 30 feet from the loudspeaker. A portable public address unit has been assembled weighing 200 pounds. It contains the loudspeaker, amplifier, microphone, and air compressor. The loudspeaker should be useful in noisy places such as fan rooms and crusher rooms.

LICENSING ENGINEERS

Illinois has now decided to license its engineers. Governor Dwight H. Green signed the new statute July 20, 1945. It requires that a professional engineer must have either eight years experience and knowledge equivalent to that required for graduation from an engineering college, or four years experience in addition to an engineering degree. It provides that all engineers now practicing shall obtain licenses within one year by proving they are of "good moral character and temperate habits."

INSTRUMENTS

A new 60-cycle frequency meter has been developed with a range of 59.5 to 60.5 cycles. The pointer radius is 12 inches, allowing a deflection of over five inches for 0.1 cycle. The instrument contains a frequency bridge. One slide-wire adjustment is required to give balance. The bridge is balanced by a driving motor supplied by an amplifier that receives its signal from the bridge. The instrument was calibrated against radio-station signals. A 10,000-cycle oscillator was synchronized with the radio signal. A calibrating signal of approximately 60 cycles was compared with the 10,000-cycle signal by means of Lissajous figures. The calibration was found to be constant to within 0.01 cycle over several months.

Electric calipers have been made for measuring pile diameters. The movement of one of the caliper arms causes the slider to move on a rheostat. By measuring the rheostat resistance the opening is determined. The device is made watertight, hence can be taken under the water by a diver who makes measurements that are read on a meter above water.

The electron microscope is coming into wider use; the latest institution to install one is the National Cancer Institute at Bethesda, Md. The microscope uses electrons instead of light rays and magnetic fields to do the work of lenses. It has been used to learn how the disease-fighting organisms in the blood, such as white corpuscles, attack disease-producing viruses. The study is being made to help control infantile paralysis, yellow fever, and the common cold. An additional use of electron microscopes is to determine the effectiveness of air cleaning equipment in removing pollen and smoke particles which may be too small to be seen by other means.

A network calculator has recently been installed by the Armour Research Foundation of the Illinois Institute of Technology. The circuit elements for the calculator were purchased from the Westinghouse Electric Corporation. The calculator can handle problems involving 12 generating stations, 40 loads, and 100 transmission lines and transformers. The calculator will make it possible to solve problems in a few days that would otherwise require weeks or even months to solve.

BUSINESS

The electrical output curve closely followed in 1945 the curve for 1944 until the end of active fighting in midsummer. The curve then dropped rapidly and is tending to approach the 1942 level. The maximum output for 1945 was in January when it was at an all-time high. During the third quarter of the year the output dropped about 12 per cent of the January value. The tendency at the end of the year is to match the 1942 curve both in height and formation.

The first important step in reconversion is to be sure that power will be available to run the machinery required in the manufacture of postwar products. In line with this thought, we find great demand for switchgear equipment and power connectors. The new trend is to install equipment capable of handling heavier loads than ever before.

RADIO

By G. L. Beers
Radio Corporation of America

GENERAL

The year 1945 must be viewed as one of the critical turning points in the radio industry. With the end of hostilities in both the European and Pacific theaters of war the radio industry was confronted with the problem of converting its greatly expanded manufacturing facilities from the production of vast quantities of military radio and electronic equipment to the manufacture of the radio instruments of peace. In addition to the conversion of manufacturing facilities the radio industry found itself faced with the inauguration, on a large scale, of two relatively new broadcasting services—frequency modulation and television. Yet to be determined was the extent to which many of the new radio devices and techniques developed during the war could be used in peacetime pursuits.

MILITARY RADIO EQUIPMENT

Shortly after the cessation of hostilities the shroud of secrecy was lifted from many of the military radio equipments which were so vital to our military operations. Taken as a group, the devices under the general classification of radar, an abbreviation for "radio detection and ranging," were the most numerous and undoubtedly the most important. An indication of the extent to which radar equipment was used by the armed services is given by the fact that, from the start of the war until July 1945, approximately $2,700,000,000 of radar equipment had been delivered to the Army and Navy. Of this quantity approximately $1,000,000,000 was airborne equipment, $500,000,000 was shipborne equipment, $800,000,000 was ground equipment, and $400,000,000 was miscellaneous radar.

Radar principles were first used to measure the distance to the ionosphere, which is the radio reflecting layer near the top of the earth's atmosphere. The method of measurement involved the sending skyward of radio frequency signals in the form of very short pulses, a small fraction of a second in length, and measuring the time it took the pulse to reach the ionosphere and be reflected back to earth. Since radio waves travel 186,000 miles a second, it was a simple matter to convert the time required for the pulse to travel to the ionosphere and back to earth into distance. The reliability of any such distance measurements is of course dependent upon the accuracy with which the time interval, in small fractions of a second, can be measured. During the war, techniques were developed for measuring time in fractions of a millionth of a second. Such time intervals correspond to an accuracy of only five or 10 yards in range.

Shortly before the beginning of the war it was found that, by radiating signals in a narrow beam through the use of directional antenna, the pulse ranging technique could be used both to locate and measure accurately the distance to objects such as airplanes and battleships. At the start of the war the British had installed ground radar equipment for the detection of aircraft, and it was this equipment which was instrumental in winning the Battle of Britain.

WAR USES FOR GROUND RADAR EQUIPMENT

During the war not only was improved ground radar equipment developed for detecting and ranging of enemy aircraft, but more elaborate equipment was devised in which the antenna system moved automatically so that it always pointed to the approaching plane and by remote control caused antiaircraft guns to follow the plane. Another important application of radar equipment was the ground control approach (GCA) or talk down system which was used at landing fields to land our planes when the pilots were unable to see the airstrip. By means of radar equipments covering the glide path for the landing strip, a ground crew was able to give verbal instructions to the pilots over the plane's radio communication system and to keep the pilot advised all the time whether he was above or below, to the right or the left, of the glide path. This system was very effective in bringing down planes, many of which would undoubtedly have cracked up in landing because of poor visibility. This type of radar equipment was assembled in a large mobile unit. One of its primary advantages was the fact that no special equipment was required in the plane.

SHIPBORNE RADAR EQUIPMENT

Naval use of radar equipment made it possible for our ships to go through whole engagements in which the enemy was detected, ranged on, and sunk without a single man having seen him visually. Not only does shipborne radar equipment make it possible to locate and destroy the enemy but it also enables the ships to keep in formation at high speed in unknown waters since they can "see" one another and the shore by radar.

AIRBORNE RADAR EQUIPMENT

Two of the important uses of airborne radar equipments were for the detection of surface vessels and for determining the position of enemy aircraft from night fighters. By means of the PPI or Plan Position Indicator type of equipment a map is drawn on the face of a cathode ray tube. With this equipment the radar operator gets a "picture" of the targets spread out below. A high percentage of the submarines destroyed in the latter stages of the war was detected by means of airborne radar. Radar made it possible for bombers in unfavorable flying weather to "see" landmarks such as shorelines, cities, mountains, lakes, and rivers. Not only was it possible for them to navigate unerringly to the target area, but if the weather prevented a visual bomb run they could line up on the target and bomb by radar.

Two general types of altimeters were also important items of airborne radar equipment. Both types radiated a signal from the plane to the ground, and the altitude was determined by measuring the time for the signal to travel from the plane to the ground and back to the plane again. One type had an altitude range from a few hundred feet to 50,000 feet. This type, which was very accurate, radiated signals in the form of very short pulses. The second type had a normal range from 0 to 400 feet, but a switching arrangement could be used to extend its range to 4,000 feet. The determination of altitude with this type of altimeter was made through the use of frequency modulated signals. Both altimeters gave the distance between the plane and the terrain beneath as distinguished from the elevation above sea level. Thus these instruments were valuable navigational aids since they could be used at night or in unfavorable weather to warn the pilot of obstructions when flying over unknown terrain.

Another important type of airborne radar was the tail warning equipment which warned fighter pilots of the approach of enemy aircraft from the rear.

MISCELLANEOUS RADAR EQUIPMENT

One of the most important and best kept secrets of the war was the VT proximity fuse. This fuse consisted of a miniature radio transmitter and receiver which operated within the shell after it was fired from a gun. When the projectile containing the fuse was fired radio waves were radiated by the fuse. These radio waves were reflected by the target and picked up by the receiver in the fuse. When the projectile came within a desired distance of the target the reflected signal from the target became sufficiently strong to cause the receiver to detonate the projectile. The VT fuse greatly increased the effectiveness of antiaircraft fire. In combination with radar detection and ranging equipment, it was used quite successfully against the V bombs directed at London. The VT fuse also provided an excellent anti-personnel weapon since through its use a projectile could be exploded at a desired height above ground showering a wide area with shell fragments.

Two navigational systems employing either radar principles or operating techniques closely allied to radar were used extensively during the war. The Loran (Long Range Navigation) System provides the navigator of a ship or an aircraft with a knowledge of his position by measuring the relative time of arrival of two or more radio signals sent synchronously from known points. At the end of 1945 the several installations of this system provided precise navigational coordinates covering approximately one-quarter of the earth's surface. It is expected that this system will play an important role in post-war transoceanic air navigation.

An aircraft employing the Shoran (Short Range Navigation) System determines its position by radiating a signal which is automatically picked up and repeated by two ground stations. The "fix" or position is obtained by measuring both the total elapsed time between the transmission of the signal and the reception of the repeated signals and the relative time difference between the repeated signals. This navigational system was used primarily for bombing under conditions of poor visibility. The accuracy obtained in bombing with Shoran has been reported to be equal to the accuracy of the best visual bombsights.

THE FEDERAL COMMUNICATIONS COMMISSION

Paul A. Porter, who took office as a member of the Federal Communications Commission on Dec. 22, 1944 under a recess appointment by President Roosevelt, was confirmed by the Senate as Chairman of the Commission on Jan. 18, 1945.

Governor Case's term as Commissioner expired on June 30, 1945. William H. Wills was nominated by President Truman on June 13, 1945 to fill the vacancy. He was confirmed by the Senate on July 12, 1945 and took office July 23, 1945.

F.C.C. FREQUENCY ALLOCATIONS

During 1945 the Federal Communications Commission's efforts were directed primarily toward the allocation of frequencies for frequency modulation and television and the establishment of rules and regulations for these two broadcasting services.

The initial F.C.C. hearing on the allocation of frequencies between 10 kc and 30 Mc began on Sept. 28, 1944. The Commission on Jan. 16, 1945 issued a proposed report for frequencies above 25 Mc. Oral argument on the Commission's proposed report began on Feb. 28, 1945. During this hearing, reference was made by the Commission's experts and others to classified material on propagation. Secret sessions were accordingly held on March 13 and 14, 1945 at which individuals with the proper military clearance could review this classified material.

The Commission on May 21, 1945 issued a final allocation report on frequencies above 25 Mc. This report proposed the following three alternative assignments for frequency modulation broadcasting: (1) 50-68 Mc, (2) 68-86 Mc, (3) 84-102 Mc. Propagation tests were suggested which were to be conducted by the Commission's engineers with the cooperation of industrial engineering organizations. These propagation tests were to provide information which would assist in choosing one of the three alternative allocations.

Early in June 1945 the Frequency Modulation Broadcasters Incorporated and the Television Broadcasters Association both petitioned the Commission to forego the propagation tests and take immediate action on the allocation of frequency modulation and television channels. Both organizations recommended alternative allocation proposal number one which retained frequency modulation broadcasting in substantially its pre-war position in the frequency spectrum. The Commission then set June 22, 1945 for further oral argument on the alternative proposals.

On June 27, 1945 the F.C.C. announced the final allocation for frequency modulation broadcasting and television. This allocation was essentially the same as alternative three in the Commission's report of May 21, 1945. Frequency modulation broadcasting was allocated 100 channels 200 kc in width between 88 and 108 megacycles. Television was allocated thirteen 6 Mc channels for a commercial television broadcasting service. Six of these channels were located between 44 and 88 megacycles and seven were between 174 and 216 megacycles. The 44 to 88 Mc band included, in addition to the six television channels, four megacycles between 50 and 54 Mc for amateur use and four megacycles between 72 and 76 Mc for non-government fixed and mobile services. Frequencies between 480 Mc and 920 Mc were allocated by the Commission for experimental broadcasting of both high resolution monochrome television and television in color.

A ten megacycle band between 460 and 470 Mc was allocated for Citizens radio. In this band the Commission will license individuals to use equipment of the walkie-talkie type or equipment installed in an automobile by which an individual can talk with his home or office. Citizens radio may be of great value to physicians, farmers, and other individuals who may have need to communicate frequently with their homes or offices.

THIRD INTER-AMERICAN RADIO CONFERENCE

The Third Inter-American Radio Conference was held in Rio de Janeiro in September 1945. This conference was marked by a spirit of cooperation among the delegates and by unanimity of opinion as to objectives and methods of procedure. During the conference the Inter-American Radio Convention of Havana 1937 was revised to include all forms of telecommunications. The Inter-American Radio Office was also expanded into an Inter-American Telecommunications Office under the supervision of the Pan American Union. Its seat will remain in Havana, Cuba.

A number of resolutions, recommendations, and material for study by future telecommunications conferences were adopted, the chief of which was the frequency allocation plan proposed by the United States delegation. In general, the other nations of the Western Hemisphere were favorably impressed with this allocation plan. The United States plan for a Central Frequency Registration Board was also generally approved by the conference.

A resolution was adopted recommending complete liberty of information in radio communications. Recommendation was made that a special world conference be called immediately following the next International Telecommunications Conference and at the same place as the International Conference, for the special purpose of resolving the problems relative to high frequency broadcasting and to eliminate the present chaotic state in the frequency bands assigned to this service. Another recommendation provided for the trial of frequency modulation broadcasting in those tropical zones where standard broadcasting had been found unsatisfactory, and high frequency broadcasting has therefore been used for local coverage.

There was general agreement regarding a proposal by Uruguay for an Inter-American Association of Broadcasters and a conference was scheduled for March 15, 1946 in Havana to arrange the details for such an association. Plans were also laid for an engineering conference of parties to the North American Regional Broadcast Agreement to consider the terms under which this agreement could be extended beyond its present expiration date of March 29, 1946. It was further agreed that the Fourth Inter-American Radio Conference would be held in Colombia.

INTERNATIONAL AND MARINE COMMUNICATIONS

The year 1945, from the standpoint of point-to-point communications, was marked chiefly by the establishment of points of communication in Europe and the Far East as a result of the successful prosecution of the war. In addition to the reopening of circuits interrupted during the war several new telegraph and telephone circuits were established.

At the beginning of 1945, marine communication, except for safety purposes, was limited to certain inland waterways. U. S. ships on the high seas were required to maintain radio silence. At the end of May, 1945, the radio silence restriction was removed for cargo ships in the Atlantic and in certain other waters considered as non-combat areas. In August, 1945, all ships in non-combat areas were permitted to send messages relating to ship's business. In September, 1945, the entire world was classified as a non-combat area. Marine traffic, however, continued to be restricted because of a lack of sufficient frequencies and because of the necessity of continuing a world wide air-sea rescue communications system. Coastal stations on the East and Gulf coasts were reopened in October, 1945, and reassigned a limited number of high frequencies for long distance communication.

RADIO RELAY SYSTEMS

The Western Union Company with the cooperation of the Radio Corporation of America demonstrated a radio relay system between New York and Philadelphia and announced plans which may ultimately lead to a replacement of their wire lines with radio beams. The Telephone Company is installing a radio relay system between New York and Boston. The Raytheon Co., General Electric Co. and International Business Machine Co. have also indicated their intentions of entering the radio relay field.

RADIO RECEIVERS

It is estimated that the total number of radio receivers in the United States on Jan. 1, 1945 was approximately 48,000,000 home and portable type instruments and 7,000,000 auto receivers. Surveys have shown that approximately 10 per cent of these instruments were inoperative and in need of repair. The number of receivers in use, which will be considered obsolete when new instruments appear on the market, will depend to a considerable extent on the public acceptance of new broadcasting services such as frequency modulation and television. It was quite evident, however, that at the end of 1945 the radio industry was faced with an exceptionally large potential demand for new radio receivers. The time required to satisfy this demand will probably depend on limiting items such as electrical components, tubes, and cabinets. Although some delay is attributed to the change in the frequency allocations for frequency modulation broadcasting it is expected that both frequency modulation and television receivers will appear on the market in the early part of 1946.

AMPLITUDE MODULATION (AM) BROADCASTING

In 1945 radio broadcasting was privileged to bring to the people of the nation the first news of three events of extraordinary significance—President Roosevelt's death and VE and VJ days. The dependence of the public on radio broadcasting for news of unexpected happenings was amply demonstrated by these events. The cessation of all hostilities in August shifted the background in many radio programs from war to peace.

The sales of several AM broadcasting stations were consummated during 1945. One of the outstanding transactions was the purchase by Aviation Corporation of Station WLW from Powell Crosley. Significant of the interest of newspapers in the broadcasting business was the purchase by the *Philadelphia Evening Bulletin* and *Philadelphia Inquirer* of Stations WPEN and WFIL, respectively, and the acquisition of WQXR by *The New York Times*.

The high level of general business

activity during 1945 was reflected in the extensive use of broadcasting as an advertising medium.

FREQUENCY MODULATION (FM) BROADCASTING

Frequency modulation broadcasting during 1945 was characterized by curtailed program schedules imposed by manpower and replacement parts restrictions. In the latter months of the year several stations discontinued broadcasting in order to proceed with the installation of equipment for their new channel assignments in the 88 to 108 Mc band. It is expected that a number of stations will begin operation in the new frequency band during the first half of 1946. The justification for shifting FM broadcasting from the region of 50 Mc to the 88 to 108 Mc band was the subject of a heated controversy during the 1945 hearings before the Federal Communications Commission.

Over 600 applications for licenses to operate frequency modulation broadcasting stations were on file with the Commission at the end of 1945. Approximately 60 per cent of the AM broadcasting stations have indicated their intention of entering the FM broadcasting field by applying for FM licenses. Newspapers constitute a relatively large percentage of the FM applicants who do not own AM stations.

TELEVISION BROADCASTING

The year 1945 brought with it increased activity on the part of several television broadcasting stations. Live talent pickups which had been discontinued during the war were resumed and the number of program hours increased. One of the notable television events of the year was the broadcasting of the Army-Navy football game direct from the Municipal Stadium in Philadelphia. This game was broadcast by television stations in Philadelphia, New York, and the Schenectady-Albany area. The program was relayed to New York over the American Telephone and Telegraph Company's coaxial cable and from New York to Schenectady by radio relay.

At the end of 1945 more than 130 applications for commercial television broadcasting licenses were on file with the Federal Communications Commission. It is estimated that the 13 channels allocated to commercial television broadcasting will permit more than 400 television stations throughout the United States with a maximum of seven in any metropolitan area. Interference problems in the congested eastern seaboard area will further limit the number of stations which can be allocated to cities such as Philadelphia, Baltimore, and Washington.

Two of the major problems confronting television broadcasters at the beginning of 1945 were: 1. Television network facilities which would supply a large number of television stations at distant points with programs from any studio or pickup location, and 2. Television pickup tubes with sufficient sensitivity to make it possible to televise events under very unfavorable light conditions.

Definite progress was made during 1945 toward a realization of both these objectives. The American Telephone and Telegraph Company completed its coaxial cable from New York to Washington through Philadelphia as an intermediate point. The telephone company announced plans to complete by 1950 a coast-to-coast network for the transmission of television programs. During the early part of the year the Philco Corporation gave a demonstration of a television radio relay system installed between Washington and Philadelphia. Other organizations announced plans for actively investigating radio relay systems as a means for networking television stations.

Progress on the pickup tube problem was indicated by the RCA Laboratories' announcement of the development of the Image Orthicon having a light sensitivity at least 100 times greater than previous pickup tubes.

The Westinghouse Co. in cooperation with the Glenn L. Martin Co., announced plans to investigate the possibility of broadcasting frequency modulation and television programs from transmitters in planes flying at altitudes of 30,000 feet.

Demonstrations were given during the year of projection type home television receivers employing improved optical systems having high efficiency and producing pictures approximately 18 by 24 inches.

TECHNICAL PROGRESS IN SOUND EQUIPMENT

By W. J. Morlock
RCA-Victor Division, Radio Corporation of America

GENERAL

Before the Second World War, sound equipment developed normally under pressure of ordinary consumer demand. With the impact of war, however, manufacturers concentrated their efforts on equipment for military use. By the early part of 1945, they were turning out, in stupendous quantity and variety, equipments that had higher efficiency and greater reliability, when used under the most trying extremes of conditions, aboard ship and in the field, than anything previously produced.

Reports from installations at sea and on land, during 1944, indicated that new materials, innovations in their treatment, and new manufacturing methods resulted in equipment that was vastly improved for the most exigent military purposes. These improvements brought increased demand for sound equipment in a far wider variety of applications.

With the end of the war, military demands became less pressing, and manufacturers turned their attention to the commercial field; they took with them, ready for application, all that had been learned through production for war purposes. Every indication points to the fact that this renewed activity will provide, in addition to better operative equipment, newer types of installations that may be utilized in a widely varied field.

SOUND AMPLIFYING SYSTEMS

The extensive use of sound amplifying systems in military operations, and the efficiency resulting through their use, has increased the commercial demand for the same sort of systems. Among these, demands from factories and offices loom large on the business horizon. Many of these organizations have already installed sound broadcasting systems as a means of improving employee efficiency. During wartime shortages of equipment, these systems were assembled from the best then available; but the demand now is for improved and reliable components designed for specific applications.

The equipment manufacturers have studied these requirements, and as a result, will be producing especially designed components, such as microphones, amplifiers, control consoles and loudspeakers, all of which will have the reliability and ruggedness required by industrial plants. As these plants are reconverted, the trend has been to acquire "Engineered Sound Systems," especially designed to provide facilities for general or selected area broadcasting of musical programs, time signals, emergency alarms, and the like. Relations between personnel and management are improved by an intelligently operated plant-wide broadcasting system. Consequently, emphasis is placed not only on the necessary equipment, but also upon the responsibilities in the operation of the system.

One of the most effective mediums in promoting employee morale and cooperation is the broadcasting of planned programs, usually under the auspices of the personnel department. Thus, the controls and the entire operation have been simplified, so that non-technical members of the staff can handle the system. Some manufacturers have incorporated various automatic features in their systems, such as automatic volume control operation and interlocking switching circuits, in order to meet the new conditions.

USE OF SOUND SYSTEMS IN EDUCATION

There has been an increasing utilization of sound systems in schools and colleges, and as a consequence, the United States Department of Education is establishing specifications to be used for guidance in setting up these systems. This activity has not yet progressed to the point at which the schools have a definite set of specifications, but equipment is rapidly being standardized.

The Federal Communications Commission has allotted F-M wave lengths to the schools, and the plans are to have a central broadcasting station that devotes its time to transmitting courses of instruction to schools. Lectures and information will be picked up and selected by individual schools and broadcast over their respective sound systems. The plan of operations is still incomplete, but the progress being made is encouraging. Meanwhile, the schools are procuring equipment so that they may take advantage of the central service when it becomes available. The educational field is alert to the advantages in the use of special equipment, already proved efficient by the military forces, for instruction. Various manufacturers are already preparing to produce equipment, such as recorders for voice and music instruction, transcription records, and film reproducing systems, especially designed for educational purposes.

SOUND SYSTEMS FOR HOSPITALS

Among other necessities brought about by the war is a great expansion of hospitalization facilities. This has introduced greater requirements for sound systems adapted for hospital use. The Government, during the war, procured broadcast equipment for use on hospital ships, and this demand is being carried over to the land hospitals. Equipment of this type provides not only entertainment and relaxation for the patients, but also is of help during the shortage of trained personnel, if the proper features are built into the system. The amplifying equipment, in general, is similar to that used in industrial plants, but the control facilities and the loudspeaker features are designed specifically for hospitals.

Some manufacturers are producing a special type of earphones for hospital patients that are free from the principal inconveniences of the older types. The new models provide for the sound to be conducted through the bone structure of the skull, thereby relieving direct pressure of the earphones against the ears. Other manufacturers are providing acoustically compensated loudspeakers of the "under-the-pillow" type. These items, plus a control system which enables the patient to talk directly from his bed to the nursing supervisor, save time and many extra steps for the nurses. In addition, the "talk-back" system is extremely useful, both physically and psychologically, during a patient's convalescence.

REINFORCING SYSTEMS FOR LECTURE ROOMS AND OTHERS

The need is increasing for high quality sound reinforcing systems for auditoriums, lecture rooms, and banquet halls. Technical advances in small, two-way speaker systems make better quality equipment available for this use. The resultant effect of the wider range equipment is to eliminate the artificial tone quality which was apparent in many of the pre-war units. A basic requirement for obtaining greater naturalness in sound reinforcing systems, which is becoming better recognized, is that such systems should "reinforce" the sound to its original level only, rather than "amplify" the sound to unnaturally high levels. This is particularly so when prominent lecturers or organizations are to be attracted to a locality. In larger auditoriums and theatres that feature stage shows, the trend toward use of this improved equipment is developed to the point where control consoles are installed and operated in conjunction with a multiplicity of concealed microphones. This type of system produces naturalness of tone, and assures adequate sound coverage. One of these modern systems is installed in the Chicago Civic Opera House.

THEATRE PROJECTION EQUIPMENT

Although hostilities ceased in August, 1945, there has not yet been time enough for commercial equipment to profit by the full effect of wartime development. However, it is confidently expected that experience in providing, for the armed forces, equipment that is rugged and reliable under all conditions, will lead to outstanding improvements in post-war design for general use.

In the production of sound tracks, laboratory work has given the industry acceptable dye type instead of the usual silver sound tracks used in color films; results have been excellent. In addition, phototubes, usable with either dye or silver sound tracks, have been developed which may find further use in theatre sound equipment.

Another advance owing to the development of improved materials is the production of superior loudspeakers that feature higher sensitivity and wider frequency ranges. In the general type of sound equipment for theatre use, there has been little change; however, some new designing permits simplification of installation and servicing of equipment. Various manufacturers are already quite active in developing large picture television systems for theatres. In this category, two basic ideas are being considered. The first is the use of high-voltage cathode-ray tubes with a special projection lens of high light efficiency. The second is the exposing of film by a small cathode-ray tube, coupled with a high-speed developing process. The first system has the advantage of instantaneous projection and low operating cost. The second system has the advantage of more screen illumination and controlled program delay. No definite conclusions can yet be drawn regarding the relative merits of the two systems.

16 MM SOUND PROJECTORS

The experience with 16 MM sound projectors by the Army and Navy during the war has provided an incentive to the commercial use of the 16 MM equipment, and has been instrumental in making 16 MM films, for entertainment and training, available to the general public.

Many manufacturers are planning to sell equipment especially designed for the home, schools, and small theatres. Although built according to the same basic principles of earlier models, the newer equipment embodies simplified design features and components developed during the war. The trend toward simplicity will undoubtedly reduce the size, weight, and cost as compared with former equipment.

At present, the demand for installation of 16 MM equipment in the educational field is the most pronounced, as the value of visual teaching has been widely publicized. In general, this equipment is of the semi-professional type and of rugged construction. Similar units for home use are being developed, which, since the basic requirements as to sound and light are less, will supply only what is adequate. These developments, if successful, will provide an instrument for the home which is specifically designed for such use in regard to performance and cost. Plans are under way by certain large commercial organizations to make feature films available for home instruments on a moderate rental basis. If these plans materialize, the projection of sound motion pictures in the home living room may become as common as the phonograph.

Another item in the entertainment field, which was started before the war, was the coin-operated 16 MM sound projectors. New equipments will use the same principles, but will certainly be more sturdy and reliable.

The increased demand for the standard 16 MM sound projectors has brought an increased demand for 16 MM recording equipment, which manufacturers are already supplying. As the result of wartime experience, recording equipment also will be reduced in size and complexity.

BROADCAST SPEECH INPUT EQUIPMENT

The end of the war saw an increased activity in supplying the peacetime demands of broadcasters for new equipment with which to enter the television and F-M broadcasting markets. The valuable lessons learned during the war are being turned to use in peacetime. The advantages of standardization have been apparent for many years, but the newest step involves the interchange of complete equipments and components. Notable advances have been made in the utilization of plug-in components of all types, including plug-in amplifiers and capacitors; thus simplifying the work of the broadcaster. The high performance standards of the F-M broadcaster are reflected in now components now in production in that they have appreciably greater frequency range, lower distortion, and quieter operation. Great strides also have been made in loudspeaker and microphone developments. Microphone frequency range has been increased to 15,000 cycles, and the new speakers faithfully reproduce this wider frequency range. For the first time, the broadcaster now has a new, highly efficient tool—a wide-band, high-fidelity broadcast system from microphone to loudspeaker.

NAVAL ARCHITECTURE AND MARINE ENGINEERING

By James L. Bates
Director, Technical Division, U. S. Maritime Commission

GENERAL

The year 1945 saw the completion of the war shipbuilding programs of merchant ships, the greatest shipbuilding accomplishment of all time. As VE and VJ days were proclaimed, the nation's merchant shipyards were occupied in the main in the turning out ships for use by the military and for transporting oil and gasoline to the various battle zones.

Late in 1944 the Liberty ship program was gradually curtailed to permit the construction of the faster Victory ships. This program was completed before July except for a few conversions to colliers and for carriage of unboxed planes. The Victory ship programs of both cargo carriers and combat-loaded cargo and transport service were also completed.

The merchant shipbuilding program for 1946 will be limited to the building and conversion of ships for the postwar era. The emphasis probably will be on passenger-carrying ships and long range type cargo ships arranged and equipped to suit particular trade routes and operators.

During the first half of 1945 the major shipbuilding effort was in the construction of merchant ships adapted to suit immediate military needs. Such vessels included the combat-loaded cargo and transport types for Navy use, the small cargo carrier for use between far-flung bases in the Pacific, and tankers.

PRODUCTION

The merchant shipyards were kept busy the first six months of the year in completing the various shipbuilding programs. As the various yards completed their programs, some turned their attention to urgent repair work of both naval and merchant craft. The cessation of hostilities caused a cut-back in some of the programs, which resulted in a number of shipyards terminating their activities.

The 1945 record of construction shows that there were delivered to Dec. 1, 1945, 1,064 vessels of 10,373,016 tons deadweight. These totals include 144 Liberty type ships, 310 Victory cargo type, 117 "C" type cargo, 162 tankers, 86 military type, and 255 miscellaneous vessels.

The grand total of construction since Jan. 1, 1942 to Dec. 1, 1945, is 54,002,123 deadweight tons. The number of ships built in the same period is 5,573, of which 2,710 were Liberty type ships, 531 Victory type vessels, and 597 tankers.

Construction has started on the adaptation of the long range type vessels to various trade route requirements, and also on a number of refrigerated type vessels of new design and other vessels. These vessels include three C3 combination cargo and passenger vessels for the Mississippi Shipping Co. and nine C2 combination type for the Grace Line; two vessels of the P2 type for passenger cargo service in the trans-Pacific trade and 17 C3 type and nine C2 type cargo vessels to suit various operators. Three Victory type ships are also being converted for passenger service in the Caribbean for the Alcoa Steamship Co..

One ore carrier of new design for the carriage of iron ore from Cruz Grande, Chile to Sparrows Point, Maryland, was delivered and three more are under construction. Of the nine twin screw all reefer ships contracted to be built for the United Fruit Co., one was delivered, and another was scheduled for delivery before the end of the year.

Two cable laying and repair vessels, MC. design S3-S2-BP1, were completed. These vessels are unique in that they are the first cable ships to be designed in this country and consequently have many improvements introduced in comparison with previous vessels converted from existing tonnage. The cable machinery in particular and the means for control of the vessel received special attention so as to provide the greatest flexibility of operation.

CONSTRUCTION CANCELLATIONS

The end of hostilities eliminated the need for many of the vessels then under construction intended for use in military operations. A thorough review was made of the construction programs, and many cancellations of contracts resulted. These cut-backs affected one yard and four Liberty ships; three yards and 42 Victory ships; two yards—13 military type; six yards—36 tankers; and six yards—47 miscellaneous types.

A study of the probabilities of returning certain vessels to their former peacetime passenger service, both from the standpoint of cost and time, showed that the North Atlantic passenger service could be maintained by these vessels through the readjustment years immediately ahead. Work on the conversion of the three P2 type vessels for this service was, therefore, discontinued.

Throughout the war, some 91 yards engaged in the building of the vessels included in the Maritime Commission programs. On Dec. 1, 1945, 16 yards were still building merchant ships, five of which yards had been erected to take care of the emergency construction of merchant ships and special craft for military use.

CARGO HANDLING

During the year steps were taken to put into practice some of the results of the many studies made on this subject.

Overhead gantry cranes traveling athwartships were fitted over the forward hatches of the *Sea Hawk,* a C3 cargo vessel. The outboard tracks are supported by hinged triangular cantilever trusses hinged at deck edge to stow inboard or parallel to the ship's side, which permit the traveling cranes to pick up cargo from 20 feet over the ship's side. The travelers over double ganged hatches carry two winches of five tons capacity and two of 20 tons capacity each. Change over from light to heavy lift can be accomplished instantaneously by the shift of a lever. Marriage of the two heavy duty winches through an evener makes it possible to handle single lifts up to 40 tons.

The use of this rig has brought out certain objections such as insufficient drift limiting its use to certain cargoes and certain ports. Where piers have narrow aprons the vessel needs breast-ing out from the pier. This rig was described fully in a paper presented at the annual meeting of the Society of Naval Architects and Marine Engineers held in New York Nov. 15, 1945 by Arthur C. Rohn of the U. S. Maritime Commission.

Improvement in overhead gear operating over twin hatches was made the subject of special investigation by the U. S. Maritime Commission.

Steps toward introducing uniform packaging and use of containers in special designed ships were taken by Great Lake interests for the handling of freight on those water routes.

PROPELLING MACHINERY

The year 1945 witnessed notable commercial developments in Marine Engineering. Because of the importance of good economy and the less critical weight and space limitations, the commercial development differs widely from the naval development. The commercial unit runs at its designed power most of the time, and secures lower fuel rates and maintenance costs at the expense of space and weight.

During the year the largest trunk piston Diesel engine built in this country, a Nordberg engine developing 6000 SHP at 160 R.P.M., was installed on a Victory ship. The Ore Steamship Co. put into service the first of four of the largest ocean-going bulk cargo ships in the world. These ships are propelled by 11,000 SHP steam turbine plant utilizing steam at 1400 psi and 740°F. which is reheated in two stages of steam reheats to 565°F. This ship attained a fuel rate of .505 pounds per shaft horsepower hour on trials.

In marine design the engineer has to balance the advantages in weight and cost of a high rotative speed in the prime mover against the advantage in efficiency of a low rotative speed at the propeller. This problem was successfully solved in the case of steam turbines by the use of mechanical reduction gearing or electric drive.

In the case of Diesel engines the speed reduction was accomplished by the use of electric drive using generators and motors or by the use of reduction gears provided that a flexible coupling is interposed between the engine and the gear to reduce the torque variations set up by the engine. On a class of small Diesel tankers it was found that the engines could be directly coupled to the reduction gear provided that the mass and stiffness of the component parts of the drive were so selected that there would be no serious torque fluctuations in the gear. Two such installations, using 1400 B.H.P. Enterprise engines turning at 300 R.P.M. and 1400 B.H.P. Nordberg engines turning at 272 R.P.M. for turning a propeller at 116 R.P.M., prove to be very practical in eliminating the space, cost, and losses involved in the use of a special flexible coupling.

On one of the C1-M-AV1 class of cargo ships there was installed a unit which by combining electric motor and generator in one provided higher efficiency with reduced space requirements as compared with a Diesel electric drive. This unit which transmits 2160 horsepower, reducing the revolution from 240 to 120, is the invention of Thomas D. Bowes, a naval architect, and was built by the Elliott Co.

Another vessel of the C1-M-AV1 class was equipped with a controllable pitch propeller built by S. Morgan Smith. The controllable pitch propeller gives excellent maneuvering characteristics in that any ship speed ahead or astern within the power range of the engines can be obtained without changing the engine R.P.M., with an efficiency nearly as good as that of a fixed bladed propeller and at a nominal cost. The installation is intended as a pilot installation for a gas turbine powered ship since it is not practical to reverse the gas turbine to run it at low rotative speeds.

The Maritime Commission ordered a 3,000 SHP gas turbine power plant from the Elliott Co. for an experimental installation in a coastwise collier (EC2-S-AW1). This plant is expected to develop a fuel rate of .450 pounds per shaft-horsepower hour and gives great promise in improved fuel economy with reduced weight, cost, and space within the range of power. The installation runs with much lower gas temperatures than the aircraft gas turbines, and is expected to give reliable service for the life of the ship. Stable operation over a wide power range required for a ship is obtained through the use of positive displacement Lysholm compressors.

WELDING RESEARCH

With the ending of hostilities, many of the research projects pertaining to welding which have been carried on under the auspices of the National Research Council, were either terminated or would be terminated by the end of the year. Steps were initiated by the government agencies interested in ship welding to create a governing body through which research problems could be handled with dispatch and without duplication of effort.

The Welding Research Council of the American Welding Society is continuing its research program into welding problems, covering all types of materials and welding methods. These programs are mainly concerned with the immediate problems of making weldments having suitable strength, ductility, and freedom from slag, porosity, and cracks.

The Maritime Commission made hog sag tests on the T2 type tankers to ascertain the actual stress distribution throughout the main strength members. Analysis of these tests is being used as a basis for future design detail and for corrective measures in the case of local troubles on vessels in service. Strain gage readings have also been taken on a T2 tanker while on the ways preliminary to launching. These readings will be repeated after launching when the vessel is waterborne. It is expected that much valuable information will be obtained in respect to the stresses present in a welded hull owing to the erection cycle, and to its position on the ways.

ALUMINUM ALLOY SUPERSTRUCTURES

For the past several years the problem of static stability in the design of passenger vessels has become increasingly difficult because of the rise in center of gravity of the light ship. This rise in C.G. was occasioned principally by the constant decrease in machinery weight and by the increase in outfit and equipment weights in the superstructure.

As the percentage length of a house or superstructure becomes greater it tends to work more effectively as a part of the main hull girder, *i.e.*, the upper decks carry more and more of the principal longitudinal stresses. As these stresses increase, the weight of the structure required to resist these stresses also increases. In a number of older vessels the percentage length of the house which acts with the hull has been reduced by the fitting of expansion joints. This method has not proven satisfactory owing to the indeterminate stress concentration which occurs where these expansion joints land on the main hull, and to the noises made by the expansion joints which are objectionable to the passengers.

From the above the indicated theoretically ideal material for use in the superstructure would have zero weight and zero elasticity, *i.e.*, it would develop no stress upon being strained or elongated and would, therefore, occasion no stress concentration at the house ends.

Aluminum alloys which weigh one-third as much as steel and which have a modulus of elasticity of one-third that of steel, was considered by the Commission many years ago to have the properties tending toward the theoretically ideal material for superstructure construction. In collaboration with the Aluminum Company of America, a number of tests and studies have been made, all of which have borne out the practicability of the use of this material. It should be pointed out, however, that aluminum alloys have some objectionable properties which have called for the solution of problems other than those of weight and strength. Among these objectionable properties are its high rate of corrosion when in direct contact with steel, which has been largely overcome, the loss of strength at relatively low temperatures from the fire-proof construction requirements standpoint, a greater deflection under load than steel, and the failure so far to develop satisfactory strength welds.

The U. S. Navy Department has successfully used aluminum alloy as a weight saving material in the short superstructures on some destroyers and cruisers. As a result of these applications, the recent development of new high strength alloys and the studies referred to above, the Commission designed and is now building two passenger vessels for the Pacific service which incorporate aluminum construction for the two top houses and stacks. The practicability of fabricating the particular high strength aluminum alloy being used was proven by its previous application to the stacks on a large transport built by the Federal Shipbuilding and Dry Dock Co.

Plans are now being completed to make full scale strength tests on the passenger vessels as soon as they are completed. At the present time there is every reason to believe that the results of these tests will substantiate the findings of the small scale tests and that future designs of passenger vessels may well incorporate 100 per cent aluminum alloy deck houses and superstructures.

CONSTRUCTION TRENDS

The construction programs formulated thus far for the year 1946 indicate that they will be principally concerned with vessels designed for the dry cargo and passenger trade on specific trade routes. Special emphasis is upon economy in respect to both first cost and cost of operation.

With the conclusion of the war and the return of the troops to the United States, a large volume of shipping will be released for commercial operation. The reconversion of these ships for specialized commercial operation is receiving considerable attention. As noted earlier, study and experimentation are under way to improve cargo handling and so permit more rapid turn arounds and a reduction in the cost of this phase of operation. The carriage of special cargoes such as vegetable oils and frozen foods is demanding ships with equipments designed for the service. Several excellent ship hulls suitable for passenger service in the less speedy trades will shortly be released from service as transports. These ships will be reconverted, as the demand warrants, to modern ships equipped with fluorescent lighting and a streamlined profile.

At the same time passenger ships for fast and comfortable inter-continental service are being developed. These will incorporate the latest development in hull and machinery design including the use of aluminum alloy superstructures. The emphasis on these as on the entire post-war program is to construct ships which by their simple and efficient design will give good returns upon their investment in competitive routes. The fireproofing, stability, subdivision, and other requirements for safety will continue to be most stringent. The machinery plants for these ships will utilize pressures and temperatures, as determined by the economics of the cycle used, appreciably higher than those in common commercial use at present in the marine field. The auxiliaries will be primarily electric driven. On these ships the use of alternating current becomes feasible.

The underwater body of these vessels will be designed to secure the optimum ship speed for the power input. The design of the appendages, propellers, and ship structure will be carefully developed in order to insure a ship free from objectionable vibration. Studies are also being made to develop a smoke stack which, while giving a good appearance, will be high enough to prevent smoke and soot from becoming a nuisance.

In accordance with the late President Roosevelt's directive to prepare plans for passenger vessels of bold and daring design, the Maritime Commission is giving the transportation of passengers on five important trade routes very careful attention. On the Mediterranean route, three new vessels of relatively large size and 22 knots speed seem to be in prospect. The Matson interests are considering far reaching rehabilitation of the Mariposa class vessels for the run to Australia and New Zealand.

The Maritime Commission is presently engaged in preparing contract plans and specifications for high speed combination passenger and cargo vessels on the run to the east coast of South America. There are also under consideration very high speed passenger vessels having negligible cargo capacity for the trans-Pacific service.

For the North Atlantic passenger service from New York to the United Kingdom and western Europe, serious study is being given to the rehabilitation of pre-war tonnage to serve as stop-gaps for the immediate future. What decision will be made as to the permanent tonnage for this service is not as yet known. Some representatives of the Commission favor ships which will cater to clientele developed by the *Manhattan* and *Washington* prior to the Second World War.

In view of the type of competition expected to be offered by the airplane, the shipping industry is closely following the development of trans-oceanic airplane transportation in order that the two may offer services which will complement each other rather than appeal to the same class of travel.

Now that the requirements of the war are past, attention is being paid to the development of radar principles for commercial use in navigation. The first of these electronic navigators are being installed on commercial ships.

The American people may be certain that the new ships, both cargo and passenger, will offer the type of service in efficiency, cost, safety and style commensurate with the leadership which the United States now has in the marine field.

PERIODICAL PUBLICATIONS

Civil Engineering
33 West 39th Street, New York City.

Construction Methods and Equipment
330 West 42nd Street, New York City.

Contractors and Engineers Monthly
470 Fourth Ave., New York City.

Diesel Power
192 Lexington Ave., New York City.

Electrical Communication
67 Broad Street, New York City.

Electrical Engineering
29 West 39th Street, New York City.

Electrical World
330 West 42nd Street, New York City.

Electronics
330 West 42nd Street, New York City.

Engineering and Mining Journal
330 West 42nd Street, New York City.

Engineering News-Record
330 West 42nd Street, New York City.

General Electric Review
General Electric Company, Schenectady, N. Y.

Journal of Engineering Education
Prince and Lemon St., Lancaster, Pa.

Mechanical Engineering
29 West 39th Street, New York City.

Mining and Metallurgy
29 W. 39th Street, New York City.

Motor
572 Madison Ave., New York City.

National Engineer
176 West Adams Street, Chicago.

Popular Mechanics Magazine
200 East Ontario Street, Chicago.

Popular Science Monthly
353 Fourth Ave., New York City.

Power Plant Engineering
53 West Jackson Boulevard, Chicago.

Professional Engineer
8 South Michigan Ave., Chicago.

Radio Communications
19 East 47th Street, New York City.

Radio-Television Journal and Talking Machine World
1270 Sixth Ave., New York City.

Railway Mechanical Engineer
30 Church Street, New York City.

S.A.E. (Journal of the Society of Automotive Engineers)
29 West 39th Street, New York City.

Tech Engineering News
Massachusetts Institute of Technology, Cambridge, Mass.

Technology Review
Massachusetts Institute of Technology, Cambridge, Mass.

Universal Engineer
150 Nassau Street, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

Allied Building Metal Industries, 101 Park Ave., New York City.
American Association of Engineers, 8 S. Michigan Ave., Chicago, Ill.
American Ceramic Society, 2525 N. High St., Columbus, Ohio.
American Concrete Institute, 408 New Center Bldg., Detroit, Mich.
American Construction Council, 154 Nassau St., New York City.
American Foundrymen's Assn., 222 W. Adams St., Chicago, Ill.
American Institute of Chemical Engineers, 50 E. 41st St., New York City.
American Institute of Consulting Engineers, 75 West St., New York City.
American Institute of Electrical Engineers, 33 West 39th Street, New York City.
American Institute of Mining and Metallurgical Engineers, 29 W. 39th St., New York City.
American Iron and Steel Institute, 350 Fifth Ave., New York City.
American Petroleum Institute, 50 W. 50th St., New York City.
American Public Works, Assn., 1313 East 60th St., Chicago.
American Radio Relay League, 38 La Salle Road, West Hartford, Conn.
American Railway Engineering Assn., 59 E. Van Buren St., Chicago, Ill.
American Road Buildings Assn., 1319 F St., N.W., Washington, D. C.
American Society of Civil Engineers, 33 W. 39th St., New York City.
American Society of Heating and Ventilating Engineers, 51 Madison Ave., New York City.
American Society of Mechanical Engineers, 29 W. 39th St., New York City.
American Society for Metals, 7301 Euclid Ave., Cleveland, Ohio.
American Society of Naval Engineers, Navy Bldg., Constitution Ave., N.W., Washington, D. C.
American Society of Refrigerating Engineers, 50 W. 40th St., New York City.
American Society of Safety Engineers, 60 E. 42nd St., New York City.
American Society for Testing Materials, 260 S. Broad St., Philadelphia, Pa.
American Standards Assn., 29 W. 39th St., New York City.
American Statistical Assn., 1603 K St., N.W., Washington, D. C.
American Water Works Assn., 500 Fifth Ave., New York City.
American Welding Society, 29 West 39th Street, New York City.
Engineering Foundation, The, 29 W. 39th St., New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

Highway Research Board of the National Research Council, 2101 Constitution Ave., N.W., Washington, D. C.

Illuminating Engineering Society, 51 Madison Ave., New York City.

Institute of the Aeronautical Sciences, Inc., 30 Rockefeller Plaza, New York City.

Institute of Radio Engineers, Inc., 330 W. 42nd St., New York City.

National Aeronautic Assn., 1025 Connecticut Ave., Washington, D. C.

National Board of Fire Underwriters, 85 John St., New York City.

National Fire Protection Assn., 60 Batterymarch St., Boston, Mass.

National Research Council, 2101 Constitution Ave., Washington, D. C.

National Slate Assn., 644 Drexel Bldg., Philadelphia, Pa.

New York Electrical Society, 29 W. 39th St., New York City.

Radio Club of America, 11 W. 42nd St., New York City.

Radio Manufacturers Association, 1317 F St., N.W., Washington, D. C.

Society of Automotive Engineers, Inc., 29 W. 39th St., New York City.

Society of Motion Picture Engineers Inc., The, Hotel Pennsylvania, New York City.

Society of Naval Architects and Marine Engineers, 29 W. 39th St., New York City.

Society for Promotion of Engineering Education, Univ. of Pittsburgh, Pittsburgh, Pa.

Western Society of Engineers, 231 S. La Salle St., Chicago, Ill.

DIVISION XX

GEOPHYSICAL SCIENCES

EARTHQUAKES AND VOLCANOES

By Frank Neumann
Chief, Section of Seismology, U. S. Coast and Geodetic Survey

GENERAL

Seismic activity throughout the world in 1945 generally followed a normal pattern; if there was a trend, it was toward a subnormal year. There was no shock of outstanding importance except an unusually strong sea quake off Japan. To students of seismology the end of the war was the signal for renewing international cooperation, since the exchange of papers and instrumental data on a broad scale is a most important phase of earthquake research. The exchange of such data is a prime requisite for the authentic mapping of world earthquakes. In volcanology, scientific activity was concentrated primarily on the more readily accessible active volcanic areas.

EARTHQUAKES IN FOREIGN AREAS

In December 1944, two shocks of importance occurred. On the 7th a sea quake in the Pacific 100 miles off the coast of Japan generated a tidal wave which inundated houses along the coast, but damage was generally light. Instrumental records indicated that the shock was stronger than that which destroyed Tokyo and Yokohama in 1923.

In northern England, a shock on Dec. 30 was felt over a radius of 100 miles but there was no damage. On Jan. 11, 1945, the island of Jamaica was shaken and on Feb. 10, Japan experienced a widespread but nondestructive shock centering in Aomori prefecture. Adana, in southern central Turkey, reported the most destructive earthquake of the year on March 20, one despatch indicating 300 killed, another despatch 14 killed. Although 500 houses were reported destroyed, distant seismological stations did not record a major shock.

A strong shock off the Pacific coast of Colombia actuated the strong-motion seismograph at Balboa Heights, Canal Zone. Santa Fe, Panama, was badly shaken on June 3 when slight damage was also reported from David and Puerto Armuelles. On July 9, Colombia felt a strong submarine earthquake originating beneath the Pacific, and on Sept. 13, a disturbance originating in the mountains northeast of Santiago shook a large part of central Chile and actuated the strong-motion seismograph in Santiago. On Nov. 28, 4,000 persons lost their lives at Karachi, India, when tidal waves rolled in from a sea quake originating beneath the northern part of the Arabian Sea.

EARTHQUAKES IN THE UNITED STATES

The strongest earthquake of the year, on April 29, centered about 40 miles southeast of Seattle, Wash. in the Mount Snoqualmie area. It was felt throughout most of the state and in small portions of Oregon and Idaho. At North Bend, chimneys fell and glass was broken. Moderate shocks occurred in the Hollister, California area on Jan. 7 and May 17. On Aug.

15, a widespread shock disturbed the Imperial Valley area and a large part of southern California. All three California shocks were recorded on strong-motion seismographs. In South Carolina, a moderate shock centering about 30 miles northwest of Columbia on July 26 was felt over a large part of the state. A local shock in Helena, Mont. on June 1 was one of the strongest in several years and operated the strong-motion accelerograph. Several counties near St. Louis, Mo. were shaken by a light earthquake on March 27. The ground and air waves set up by the atomic bomb experiment in New Mexico on July 16 were recorded on many seismographs in the western part of the country, the ground effect being similar to that of a moderately strong local earthquake.

SEISMOLOGICAL STATIONS AND INSTRUMENTS

The status of many stations of international importance is still unknown, but in the western hemisphere there has been little change. In South America, Chile leads in effective expansion of an instrumental program.

In the United States, 42 seismological stations are in operation. Lincoln, Neb., returned to active operation and Burlington, Vt., planned to operate by the end of the year with improved equipment. More sensitive equipment was installed at State College, Penn., and new equipment is under construction for the station at New Orleans. At a private experimental station at New Kensington, Penn., progress was made in the construction of a new design of electronic visible recording seismograph.

In the field of special purpose seismographs, the Harvard Seismographic Station completed the development of a 3-component instrument for measuring strong local disturbances caused by blasting, traffic, etc. At the University of California, a recently developed high-sensitivity vibration meter of simple design was tested for use as an instrument for recording earthquakes. Electronic converters were used to supply alternating current to seismograph recording apparatus in isolated regions where only storage battery power is available.

SEISMOLOGICAL INVESTIGATIONS

Field investigations directed toward the use of microseismic records in tracking cyclonic storms in tropical regions have proved successful. Microseisms, which are of meteorological origin, are the small unfelt vibrations of the earth's surface which are being continually recorded on seismographs. A practical method of measuring their direction of propagation was demonstrated at St. Louis University five years ago and was subsequently used by the Navy in hurricane investigations.

The classification of the world's most important earthquakes, according to a recently developed magnitude scale, was advanced considerably at the Pasadena Seismological Laboratory. Instrumental records and reports as far back as 1904 are being reinterpreted and 70 great earthquakes have thus far been identified. At the California Institute of Technology, investigations were continued on the relation between local earthquakes and fault structures.

Local earthquakes in the Boulder Dam area, caused by the great water load, were investigated and found to be associated to a large extent with certain local faults. There was evidence of a slight tilting of a large crustal block. The shocks were accurately located over a period of years from data obtained at seismological stations established by the Bureau of Reclamation in the Lake Mead area.

Special investigations in seismic areas continued, notably the instrumental program of the U. S. Coast and Geodetic Survey for recording destructive ground motions in the Pacific Coast states, an earthquake information program by the same organization, and the local chains of seismological stations in the San Francisco, Los Angeles, and St. Louis areas. The Canadian Government operates a similar chain of stations to investigate seismic activity in the St. Lawrence River area.

A representative of the Coast and Geodetic Survey visited many countries in South America under a seismological project sponsored by the State Department and installed strong-motion accelerographs at Quito, Ecuador and Bogota, Colombia. An excellent strong-motion record of the earthquake of Sept. 13 was obtained at Santiago, Chile where a similar type of instrument was installed early in 1944.

SPECIAL VIBRATION PROBLEMS

Vibrations caused by earthquakes and those owing to other causes have so many points in common that any broad review of seismological activities must include the listing of some border-line problems. Thus, quarry and other blasting, rockbursts, certain military operations, and even the weather are all sources of ground disturbance; wind, traffic, and machinery may cause buildings to vibrate. In the case of blasting, the seismologist gains information which aids him in locating nearby earthquakes, and the engineer obtains information on the magnitude and destructiveness of the ground motion. In 1945, valuable data of this type were obtained in Idaho where surplus stores of high explosives were fired at an ammunition depot. Various Federal and private agencies took advantage of this opportunity to test new types of instrumental equipment and measure the magnitude of the ground and air disturbances.

In engineering-seismology, continued attention was given the theoretical aspects of calculating building vibrations and building stresses resulting from known earthquake motions. As a result, more emphasis is being given the great influence which the type of foundation exerts on the motion of a structure during an earthquake.

In the commercial field, a marked impetus was noted in the development of vibration-measuring equipment, especially in the application of electronic principles. Some of this equipment, developed at considerable cost during the war, may find eventual application in the solution of seismometry problems although in most cases the designs contemplate higher frequencies than are found in earthquake motions.

RELATED MEASUREMENTS

Changes on the earth's surface which may be related to earthquakes include subsidence and elevation, also tilting, of large areas, ground water changes, slow creeping over large areas, and the appearance of scarps without evidence of earthquake activity. Tide gages in this country and others installed by the Coast and Geodetic Survey in South and Central America continue to give basic data which, among other things, will eventually indicate whether the coastal areas are changing elevation. In the Long Beach, California area a subsidence problem is under investigation and another tilt-meter of the Coast and Geodetic Survey type is being installed to supplement one which has been in operation several years. Three similar instruments were kept in operation on the campus of the University of California at Berkeley. Observations by the U. S. Geological Survey on changes of water levels in deep wells were continued. They frequently indicate the passage of earthquake waves emanating from distant points.

SEISMOLOGICAL ORGANIZATIONS AND PUBLICATIONS

All seismological organizations of the country continued to function and issue their usual publications and bulletins. The Seismological Society of America, including its affiliate the Eastern Section, and the American Geophysical Union with its Section of Seismology, constitute the two principle organizations devoted to the discussion of seismological and related problems, and the presentation and publication of papers. The principal publications are the *Bulletin* of the Seismological Society of America, *Earthquake Notes* (of the Eastern Section), and the *Transactions* of the American Geophysical Union. The Jesuit Seismological Association, primarily an organization of seismological stations, continued to issue instrumental bulletins.

Another group of stations is sponsored by the Coast and Geodetic Survey which also integrates the results obtained by other groups and independent stations in so far as this is needed to publish adequate earthquake summaries. In New England, New York State, and eastern Canada, the Northeastern Seismological Association issues bulletins covering seismic activity in that area. When occasion demands, field surveys are made by most of these organizations. Through a cooperative program involving Science Service, the Jesuit Seismological Association, the Coast and Geodetic Survey, and many individual stations in the United States and abroad, nearly 50 epicenters of important earthquakes were located within a few days after their occurrence.

Two seismological stations in Greenland resumed contact with their sponsor, the Geodetic Institute of Denmark, Copenhagen, after the end of the war in Europe. During the war period they were furnished supplies through the Coast and Geodetic Survey. Several other stations in the western hemisphere were given similar aid.

The Executive Committee of the International Union of Geodesy and Geophysics, with which the International Seismological Association is affiliated, met in December 1945 to discuss reorganization and resumption of its former activities. The *International Seismological Summary*, a unit of Oxford University which calculates and publishes earthquake locations for the entire world, and which is sponsored in part by the International Union, continued to function throughout the war.

VOLCANOES—MEXICO

Volcanic activity apparently increased over 1944. Paricutin Volcano in Mexico continued to receive the greatest attention. The program of scientific observation was expanded, active parts being taken by a special Mexican Research Committee and an American Committee representing organizations associated with the Government, several leading universities, and a number of privately endowed institutions. The American Committees' research was facilitated through the acquisition of a helicopter. The Mexican Committee published a voluminous report on its findings to date. There was an overall decrease in explosive activity and flow of lava during the year, early spring marking a period which might be considered one of transition from continuous to intermittent activity. There were occasional falls of ash in Uruapan, 16 miles southeast of the volcano. No significant increase in the extent of the lava field was reported.

VOLCANIC ACTIVITY IN THE PACIFIC AND CARIBBEAN

Minor activity was reported from widespread points in the Pacific. Kluchevskaya, on Kamchatka peninsula, was in eruption beginning Dec. 11, 1944. On Dec. 30, 1944 activity on Alamagan Island (latitude 17°36′ north; longitude 145°50′ east) was reported by a passing ship. The sky was illuminated and there was a band of fire around the volcano.

On April 4, 1945, Llaima Volcano, 370 miles south of Santiago, Chile, was observed, from a plane, erupting lava and ashes from two craters. There was a smoke column 1,000 feet high. On April 30, 1945, smoke and flames, apparently of volcanic origin, were observed from a plane in the center of Matthew Island (latitude 22°20′ south; longitude 171°19′ east). A despatch dated Aug. 23 reported Mount Ruapehu, 120 miles north of Wellington, New Zealand, in eruption and spreading white ashes 50 miles around. A small volcanic island discovered off the Caribbean coast of Colombia on May 19, 1945 was reported to have disintegrated as a result of volcanic activity during July. Beginning Sept. 15, several smoke clouds were observed for short periods of time over Crater Lake in Oregon, with some indication of volcanic origin.

Several instances of discolored water, indicative of recent volcanic activity, were reported from the Pacific Ocean. On Jan. 21, a large mass of volcanic lava pumice, some pieces over a cubic foot in size, was reported in the Tonga Island region. Five days later a volcanic pumice dust patch was encountered in the New Hebrides area. On May 15, the pumps of a ship crossing the Aleutian trench near Unalaska Island picked up water containing a substance resembling volcanic ash, and excessive phosphorus particles were noticed on the surface of the ocean.

In the latter part of 1944, seismic observations at Kilauea Volcano in the Hawaiian Islands indicated greater activity than at any time in the past ten years.

MINERALOGY AND PETROGRAPHY

By Clifford Frondel
Department of Mineralogy, Harvard University

SYMPOSIA ON QUARTZ OSCILLATOR-PLATES

The spectacular development of the quartz oscillator-plate industry during the war is described in a Symposium of 14 technical papers recently published by the Mineralogical Society of America (*Amer. Min.*, vol. 30, 205-468, 1945). Another Symposium in the same general field will shortly be published by the American Association for the Advancement of Science. Production statistics and much of the technical information in the field have hitherto been withheld for reasons of military security. The tiny quartz plates were used in almost fantastic numbers as frequency controls in military radios. In this application, the alternating electrical field generated by the vacuum tube radio circuit is applied to a quartz plate, properly cut and mounted and so dimensioned that one of its natural frequencies of mechanical vibration coincides with the oscillations of the circuit, and the frequency of transmission or reception is thereby stabilized and precisely controlled. Quartz, rather than other natural or artificial crystals, some of which give much more pronounced piezoelectric effects, is employed for the purpose because of its chemical and physical stability, high elasticity, and availability.

In the twenty-year period from the first application of quartz to radio to the outbreak of the Second World War only a few hundred thousand quartz plates were made in the United States. Driven by insistent demands of the Armed Services for immediate and large production, roughly 65,000,000 units were delivered from the outbreak of war to July, 1945. About 20 per cent of the production went into tank and other ground vehicle radios, 30 per cent into aircraft radios, and most of the rest into walkie-talkie and other portable combat sets. Separate figures are not available for Lend-Lease shipments but at least several million units were sent to the United Kingdom and other Allied countries. Technical information and manufacturing equipment also was supplied to Russia and other Allied countries.

INDUSTRIAL PROBLEMS IN WAR PRODUCTION OF QUARTZ PLATES

The problem of taking a pre-war laboratory-scale industry and converting it to a mass-production basis presented an industrial problem of the first magnitude. The responsibility for initiating and guiding procurement for the Army and Air forces rested largely in the Quartz Crystal Coordination Section, General Development Division, Office of the Chief Signal Officer, War Department. This group was activated under a directive of March 5, 1942, from Major General (then Brigadier General) Roger B. Colton, Chief of the Materiel Branch,

U. S. Army Signal Corps. The Crystal Section, housed in the Pentagon Building, Washington, comprised a small group of civilian and Army technicians and scientists. The Crystal Section was aided in its task by the Crystal Branch of the Signal Corps Laboratories at Fort Monmouth, New Jersey, and later by the Aircraft Radio Laboratories at Wright Field, Ohio. The Fort Monmouth Laboratories were active primarily in placing educational orders enabling manufacturers to get set up, in awarding development contracts on equipment and technical problems, and in research. The Crystal Branch of the ARL, beginning in 1943, did valuable laboratory and field work and contributed to the increase in quality of both oscillator-plates and holders. Special acknowledgment also should be made to the Bell Telephone Laboratories and the Western Electric Company, which supplied invaluable technical information and led in the development of several types of manufacturing equipment.

The raw quartz used in the industry came almost entirely from Brazil. A stockpile of some millions of pounds was built up in the United States by the Metals Reserve Corporation, the material being graded by the National Bureau of Standards, and this and privately imported quartz were allocated to industry by the Miscellaneous Minerals Section of the War Production Board. Most of this quartz contained natural crystal faces and hence was relatively easy to orient and handle during manufacture. Broken, unfaced quartz was relatively abundant and cheap but efforts to equip and teach the industry to process such material met with reluctance. Among the principal difficulties confronting the newly established industry were uninformed management, scarcity of skilled personnel, and general lack of technical information pertaining to the practicalities of orienting quartz and cutting plates therefrom. The pre-war experience of many of the new and hastily created manufacturers was in such fields as the manufacture of lamp shades, transformers, neon lights, grindstones, and sound recording apparatus. One was an undertaker. More than one of these new companies soon were producing more quartz radio plates in a week than the whole country did in the full year 1939. The cost of tooling up and doing the job amounted to about a third of a billion dollars.

On VJ Day almost all outstanding government contracts were terminated and the industry came to an abrupt halt. There undoubtedly will be a large and continuing demand for radio plates from commercial sources, and the post-war industry will be large as compared to pre-war standards, but the present productive capacity is so enormous that most manufacturers will be forced to close down permanently. New uses for quartz also may be expected to develop. Ultrasonic radiation generated by X-cut quartz plates may find large-scale employment in chemical, pharmaceutical, and other industries. Home radios also may be fitted with quartz crystals, and the application of quartz filter plates to coaxial telephony will continue to be important. Any large scale development of portable, walkie-talkie types of radios also would require the use of crystal controls.

TOURMALINE

Tourmaline, hitherto valued principally as a semi-precious gemstone, found important application during the war in the manufacture of gauges for the measurement of transient blast pressures. The use of tourmaline for the purpose derives from its property of developing an electrical charge when subjected to properly directed pressure. The charge thus generated can be measured directly and is a measure of the pressure. Quartz also is piezoelectric, but it is not sensitive to hydrostatic pressures. As with other essential war minerals, the demand for raw material soon outstripped the supply, and intensive efforts were made both to develop domestic sources of supply and to import material. A small amount of material was obtained from granite pegmatites in the United States, but unfortunately most of the high grade tourmaline had been mined prior to 1940 and sold in China as an ornamental stone. Little or no tourmaline appears to have been stockpiled prior to the war. Madagascar and Brazil are the principal foreign sources of supply. Efforts to develop artificial materials as substitutes have met with considerable success, but the application of most artificial substitutes is restricted by their relatively high solubility and low mechanical strength. Several of the artificial substances developed for this and other applications of piezoelectricity are now in large scale production.

DETWINNING QUARTZ

A large percentage of the thousands of tons of raw quartz imported into the United States in recent years has been unusable because of the presence of an internal defect, known as twinning, in which two or more individual quartz crystals are intergrown at angles one to the other. Research work has been undertaken in government and other laboratories in an effort to find methods by which the defect can be removed artificially. The principal method employed involves heating twinned quartz wafers to a temperature over 573° C at which point the quartz undergoes an atomic rearrangement in such way that the twinning disappears. The conditions of cooling are then so controlled that the quartz wafer reinverts as a single crystalline individual instead of a twinned intergrowth. Promising results also have been obtained by subjecting twinned quartz to intense electric and magnetic fields at high temperatures. The fields tend to orient the tetrahedra of silicon and oxygen atoms composing the substance all in a common position and thus remove the twinning.

MICA IN NEW ENGLAND

The urgent wartime need for high grade sheet mica for electrical insulation led to an intensive search for and exploitation of domestic sources of supply. Field studies were undertaken by experts of the U. S. Geological Survey in the principal mica-producing districts and further impetus was given to the program by high government price subsidies. More mica mines were operated in the United States during the war than in any previous period, but the country still is not self-sufficient especially with regard to electrical mica of top quality. It is said that the Germans developed methods during the war of making mica artificially but no similar work seems to have been carried on here. In the New England area over 200 mica deposits were mapped and studied in detail by the Geological Survey and the data obtained applied to problems of mining, exploration for new deposits, and estimation of reserves. A description of this work has been published (*Econ. Geol.,* vol. 40, 461, 1945). The mica, which is of the muscovite type, occurs in granite pegmatites. The principal producing districts are in Maine, New Hampshire, and Connecticut.

SYMPOSIUM ON DIAMONDS

A notable Symposium of 17 papers on the structure and properties of the diamond has been published (*Proc. Indian Acad. Sci.,* Sect. A, vol. 19, 189,342,944). The crystal symmetry and atomic structure of the diamond is discussed by Sir C. V. Raman, who suggests that four different types of structure exist. In these, the positions of the carbon atoms are similar but the orientation of the tetrahedral carbon atoms in the lattices differ. Two of these structures are tetrahedral and two are octahedral. The four positions of the carbon atoms correspond to the four different ways of securing extinction of the resultant magnetic moment. Mixture of the several types of structure may occur within the same diamond crystal. The well known Type I diamonds, exhibiting infrared absorption, consist of either of the two tetrahedral forms or of both in twin position. Other papers in the Symposium describe the nature and origin of the luminescence effects produced in the diamond by ultraviolet light and x-rays, and the birefringence patterns seen in polar-ized light. Birefringence in diamonds is of two types: irregular, and owing to accidental imperfections such as inclusions; and structural, owing to a difference in the atomic spacing of the structural types of diamond composing the crystal. The Type I diamonds which possess blue luminescence are isotropic, showing that the two interpenetrating tetrahedral variants of the diamond structure possess identical atomic spacings.

DESCRIPTIONS OF NEW MINERALS

The number of new mineral species described during the year is relatively small, as in past war years, because of the diversion of mineralogists to other more urgent tasks. The name, eckermannite, has been given to a new alkali amphibole from Sweden. The supposed species, katangite and treanorite, have been shown to be identical with chrysocolla and allanite respectively. Yenerite is an ill-defined lead and antimony sulfosalt probably identical with boulangerite. A new hydrous iron sulfate from France, named pseudoapatelite, is related to apatelite and borgstromite, and all perhaps are identical. A new barium-feldspar has been termed banalsite; it occurs with various manganese minerals at the Benallt mine, Wales. Viseite is a supposed new phosphate-silicate from Belgium. The rare mineral simpsonite, an oxide of aluminum and tantalum previously known only from Australia, has been found in commercially important amounts in pegmatite deposits in Brazil. Jusite is a fibrous zeolite-like mineral found in cavities in an alkalic igneous rock in the Schwabian Alps. A number of other mineralogical investigations, among them studies of the uranium minerals, have not yet been reported because of military restrictions.

TERRESTRIAL MAGNETISM AND ELECTRICITY

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GENERAL

Although the Second World War came to an end in the course of the year, the general confusion attending demobilization and reconversion made impossible a complete resumption of pre-war activity in geophysical science. Particularly has international cooperation, upon which geomagnetic research so largely depends, been greatly limited by operations connected with the war. In spite of difficulties, however, considerable progress along certain lines has been made, and because of it special investigations have been brought to a successful conclusion, the results of which may not be published at the present time.

Despite the fact that vast improvements in our knowledge of the distribution of the Earth's magnetic field have resulted from work in the past few decades, our knowledge remains insufficient for solving various theoretical and practical problems.

This desideratum has been keenly felt in magnetic cartography particularly in connection with the production of magnetic maps during the war. Small ships, as in the merchant marine, depend upon the magnetic compass for navigation. Sufficiently accurate charts for navigation could not be drawn directly from observations, and it was necessary to have recourse to mathematical adjustments to furnish a more accurate representation of the field than could otherwise be obtained, but they can never compensate for the absence of observations. Observations are not only far too few but they are not distributed over the Earth's surface with uniform density.

MAGNETIC OBSERVATIONS FROM AIRCRAFT

There is a good prospect that this condition may soon be remedied by magnetic observations from aircraft. In flight above the surface of the Earth, an airplane is farther away from magnetic anomalies which affect the value of surface observations. By employing aircraft, a survey of the surface of the entire Earth would be possible in a relatively short time as compared with surveys made heretofore employing other means of travel. The accuracy of newly developed techniques, thanks to achievements during the war, can be kept more than adequate for practical and theoretical purposes.

An example of what can be achieved by such methods is supplied by the flight of the *Aries* under the sponsorship of the Empire Air Navigational School in August 1945. In the course of flights over an entirely different region, each flight occupying less than 24 hours, a new position of the North Magnetic Pole was determined, probably more accurately than ever before. On the flight use was made not only of magnetic compasses of various types but also of a three-element, saturated-core type magnetometer. The instrument was not designed for this flight but for measurements of a lower order of accuracy; yet the smoothed values of the observations obtained with it seemed to be consistent. This pioneer work demonstrates what may be expected when full advantage is taken of the technical progress of the last five years, and it is likely that the coming years will see a more extensive program of this kind in America.

INTERNATIONAL MEETINGS

In December 1945 meetings were held of the Executive Committees of the International Council of Scientific Unions (London, Dec. 4-5) and of the International Union of Geodesy and Geophysics (Oxford, Dec. 10-17) to consider resuming the complete program of the International Council and of the International Unions. The American representatives in attendance at these meetings were John A. Fleming, President, International Association of Terrestrial Magnetism and Electricity, Richard M. Field, Chairman, International Commission on Continental and Oceanic Structure, and Walter D. Lambert, Member of the Bureau of the International Association of Geodesy. In the Association of Terrestrial Magnetism and Electricity of the International Union a large part of the regular international program of geomagnetic activities has been maintained during the war, and it is hoped that the arrangements made at London will soon bring about complete international cooperation of all nations interested in geomagnetism. It is expected that the eighth triennial assembly of the International Union of Geodesy and Geophysics, which was to have been held in Bergen, Norway, in 1942, but which was postponed because of the war, will be held either in the summer of 1946 or of 1947 at Bergen.

UNITED STATES OBSERVATORIES

The United States Coast and Geodetic Survey maintained in operation its five magnetic observatories. The international magnetic standards were maintained at the Cheltenham Magnetic Observatory of that Survey, in collaboration with the Department of Terrestrial Magnetism of the Carnegie Institution of Washington. This cooperation included also a complete atmospheric-electric program at the Tucson Magnetic Observatory.

CANADA, GREENLAND, ALASKA

The observatories at Meanook and Agincourt, Canada, were operated by the Dominion Observatory as heretofore. In Greenland, the Godhavn and Ivigtut magnetic observatories obtained complete magnetic records throughout the year.

The College Observatory, located at the University of Alaska, continued to be operated by the Department of Terrestrial Magnetism of the Carnegie Institution of Washington, in cooperation with the University of Alaska. Continuous records were obtained as follows: (1) Three magnetic elements, declination, horizontal intensity, and vertical intensity; (2) rate of change of geomagnetic horizontal intensity; (3) height- and penetrating-frequencies of the ionospheric regions; (4) electric field-strength of radio waves from selected high-frequency broadcasting stations in the United States, England, and Japan; (5) direction of arrival and instantaneous field-strength of high-frequency radio signals.

The auroral studies so far made clearly indicate a lack of detailed correspondence between ionospheric phenomena and visible zenith aurora, although the gross correlation continued to be present.

SOUTH AND CENTRAL AMERICA

The programs in geophysics were continued throughout 1945 in Argentina at observatories of Pilar, La Quiaca (South Orkneys), and San Miguel, in Brazil, at the Vassouras Observatory, in Colombia at the National Observatory of San Bartolomé, and in Mexico by the Magnetic Section of the National Astronomical Observatory of Mexico at Teoloyucan.

SURVEYS

South and Central America.—A magnetic party of the United States Coast and Geodetic Survey has resumed the observations in a few South American countries. As during 1944 the work is being done this year in cooperation with the respective countries and is sponsored by the Department of State. Observations have been made at a number of stations in Mexico, Bolivia, Chile, Peru, and the Galapagos Islands. The intensive survey of Uruguay is in progress under the auspices of the Military Geographic Institute of that country; it is expected to include about 65 magnetic stations.

The magnetic survey of Argentina has been continued and it is planned to keep one party in the field during the entire year of 1946. Isomagnetic charts for Argentina for the epoch 1944.0 have been prepared for publication but only the isogonic chart has been issued, the others being withheld for the present. It is hoped that the isomagnetic lines may be extended to the neighboring republics and to the Atlantic and Pacific oceans.

United States.—A party of the United States Coast and Geodetic Survey has made magnetic and seismological observations in the vicinity of Parícutin Volcano in Mexico. The project is sponsored by the Department of State and carried out in cooperation with several other American and Mexican scientific agencies.

An automatically recording declinometer was set up in Gatlinburg, Tenn., Sept. 3, 1945; the recorder of this instrument is a modified electrocardiograph recorder and is so designed that it will operate several months without attention. It is designed primarily to obtain accurate information on secular change at a cost comparable with that of obtaining much less accurate data by ordinary repeat observations.

Canada.—Flights from a base in Canada over the North Magnetic Pole in Boothia Peninsula are being planned by the Empire Air Navigation School of the R.A.F. Flying Command. The objects of these flights are stated to be to examine the behavior of compasses and automatic dead-reckoning gear and to collect data on engine handling as well as magnetism and meteorology.

World.—The program of geomagnetic work at the Watheroo Magnetic Observatory in Western Australia operated by the Carnegie Institution of Washington was continued. The geomagnetic program at the Apia Observatory in western Samoa was also maintained by New Zealand. The Carnegie Institution of Washington continued to give assistance, through loans of instrumental equipment, to observatories in South Africa, Belgian Congo, Mauritius, and New Zealand.

GEOMAGNETIC RESEARCH

At the Department of Terrestrial Magnetism, the voluminous tables required in the reduction of magnetic observations to epoch and for the natural magnetic variations and disturbances and cosmic variations, were extended so as to cover the period from 1905 through 1944. The reductions of field-stations to the four epochs 1912.5, 1922.5, 1932.5, and 1942.5 were completed for over 10,000 stations on land and sea. Isoporic charts for the world for declination and horizontal intensity for these four epochs were completed and others for the remaining elements of northward, eastward, vertical, and total components and of inclination are nearing completion.

A theoretical examination of the problem of adjusting isomagnetic charts to mutual consistency was completed.

Calculations were made for continuation of magnetic fields on a plane or a sphere to adjacent regions of space.

Analytical and computational procedures for the analysis and interpretation of geomagnetic anomalies were developed, relating particularly to techniques of geophysical prospecting by the magnetic and gravitational methods. Relations among the surface-components of field and their gradients were compiled, and techniques of analysis using models, Fourier series, Fourier-Bessel series, power-series, and surface integrals described. These permit, under favorable conditions, useful inferences regarding sub-surface structure of advantage in prospecting for certain minerals and petroleum.

The geomagnetic disturbance daily variation (S_D) was derived for stations in southern auroral regions. Little evidence was found of important differences in the average characteristics of geomagnetic disturbance in southern as compared with northern polar regions but more observations are necessary before a definite conclusion can be reached.

Isolines of equal daily and hourly percentage-frequency of occurrence of visually observed aurora were mapped for the southern hemisphere. The extent and frequency of expansions of the auroral zone during magnetic storms is being studied, using geomagnetic as well as auroral data.

The geographic incidence of aurora and magnetic disturbance in the southern hemisphere was studied, using observations at about 40 auroral stations and 13 magnetic observatories. The position of the southern auroral zone was estimated from geomagnetic data and compared with observations of aurora. Tentative isochasms were drawn for aurora observed in the absence of cloud, results being corrected also for the influence of sunlight on observing conditions, and they appear to resemble closely corresponding isochasms for the northern hemisphere. Lines of equal average hourly percentage-frequency of aurora were mapped for the northern hemisphere for several positions of the Sun relative to the Earth. Average position of the northern auroral zone for the various years of the sunspot-cycle is being derived.

GEOELECTRIC RESEARCH

At the Department of Terrestrial Magnetism some modifications and improvements have been made in the CIW ionization-meters, and particular attention was directed to effects of secondary radiation, "volume-contamination," and "wall-contamination."

An important program was begun on adaptation of electronic circuits to atmospheric-electric instruments in place of electrometers. This resulted in improvements in investigation of rapidly varying fields associated with thunderstorms and in observations under difficult operating conditions, for example, on airplanes in storm regions.

It was found by tests that the diminution in the rate of ionization which occurs when people occupy a room is owing to a diminution in the radon and thoron content of the air. For equilibrium-conditions the alpha-ray ionization inside a room was found to be about double the gamma-ray ionization. The ratio is about 50 per cent greater than that obtained from estimates by Eve for air under out-of-doors conditions.

The small-ion content of the air was found to vary directly as the rate of ionization, becoming zero when the ionization is zero. Results indicate that the recombination-coefficient between small and large ions varies with the rate of ionization.

The probable errors of a single observation in measurements of ion-content and air-conductivity at sea were determined from analysis of results obtained during the last three cruises of the *Carnegie* to be about 12 per cent. The average error for each instrument also appears to be systematic and of such a nature as to give too low a value for the element measured, perhaps not over one per cent in mean values.

Research on seasonal changes in the diurnal variation of earth-currents and the geomagnetic field from 12 years of record at Tucson, Ariz. was completed. The changes were found consistent with effects attributable to recognized current-systems in the ionosphere northward and southward from the sun. Two anomalous features disclosed over the regular season changes were explained as probably owing in one case to space-variation in the conductivity of the ionosphere and in the other to erratic shifts in the latitudes of current-centers.

IONOSPHERE

Additional important contributions to improve radio-communication circuits resulted from continuous ionospheric data at Huancayo, Watheroo, College (Alaska), and five other stations established outside the continental United States.

The active program of research and development and the instruction of observers were continued at the Kensington Laboratory and at several field-stations. These resulted in design and construction of improved and simplified manually operated ionospheric equipment.

Seasonal features of sporadic-E already established for the northern hemisphere were confirmed for the southern hemisphere. Tests for recurrence-tendency with the 27-day period of solar rotation did not show positive correlation.

Further attention was devoted to the post-war observational program and items of research among which the most important are (1) completion of program at the Huancayo and Watheroo observatories to cover a full sunspot-cycle, (2) extended analyses of accumulated data, and (3) new projects directed toward specific problems which promise positive solutions in a reasonable length of time.

COSMIC RAYS

The end of the Second World War will make possible resumption of the active discussion and interpretation of the data accumulated by the various groups of investigators who have been cooperating with the Carnegie Institution of Washington in the program of the Committee on Coordination of Cosmic-Ray Investigations. It is expected that the programs of several of these groups hitherto engaged in war work will be resumed during 1946.

Dr. Korff of New York University reports on research on counters, on measurements of neutrons produced by cosmic radiation, and on the construction of a narrow-angle wide-aperture telescope. Prof. V. F. Hess of Fordham University has concerned himself with measurements and interpretation of studies of atmospheric ionization. Prof. Marcel Schein of the University of Chicago group has been engaged on investigations of the intermediate particles and mesotron production in the stratosphere.

In spite of difficulties occasioned by the war, the continuous recordings of cosmic radiation were continued with only minor interruptions at Cheltenham, Huancayo, Teoloyucan, Christchurch, and Godhavn. Continuous and homogeneous series of data at well-distributed stations over the Earth's surface have been realized since 1936 and 1937 at four of the stations and since 1938 at Godhavn. Accordingly, by 1949 or 1950, the records will include at least a complete sunspot-cycle for all five stations. These data should be ample for statistical analyses concerning possible seasonal effects in different localities, solar-day, lunar-day, and sidereal variations, worldwide changes, and geomagnetic correlations. These analyses, together with data on the high atmosphere resulting from numerous determinations above different points on the Earth's surface and parallel coordinated researches in the laboratory, will certainly improve understanding and interpretation of cosmic radiation.

PUBLICATIONS

The United States Coast and Geodetic Survey has published the magnetic results of the Cheltenham Magnetic Observatory for 1935-36, and "Alaska magnetic tables and magnetic charts for 1940," the latter reproduced by offset lithography. In addition, there are in press the magnetic results for Tucson during 1935-36, for San Juan during 1929-30, for the Polar Year Observatory at College (Alaska), and for magnetic observations in the American Republics during 1941-44. The "Magnetism of the Earth," replacing the earlier publication "The Earth's Magnetism," was issued about the middle of the year. About one-half of the area of the Earth has been covered by the series of isogonic charts on a scale of 1,500,000. The chart of the United States belonging to this series will soon be completed. Work was also started on the manuscript of "Magnetic Declination in the United States in 1945." It is expected that this publication will be issued early in 1946.

The American Geophysical Union held its 26th Annual Meeting in Washington, D. C., May 31 and June 1, 1945. Its *Transactions* are now being published in the form of a bimonthly journal, and the issues for August, October, and December, 1945, have appeared. Their contents are assembled in departments under the following classification: Papers; Discussions; Progress-reports; Letters to Editor; Reviews, Abstracts, and Bibliography; Notes and Personalia; Union, Section, and Committee Activities.

The quarterly *Journal of Terrestrial Magnetism and Atmospheric Electricity,* published by the Johns Hopkins Press, completed its 50th volume in 1945 thus rounding out a half-century of outstanding service to the fields of geomagnetism and geoelectricity. It contains original articles and sections on magnetic storms, on magnetic-activity indices, letters to the Editor, notes, and lists of current publications.

There are in press two final volumes of the "Results of Cruise VII of the *Carnegie* during 1928-1929, under command of Captain J. P. Ault." These are entitled *Ocean Atmospheric-electric Results,* and *The Work of the Carnegie and Suggestions for Future Scientific Cruises* (future magnetic, electric, and oceanographic surveys).

METEOROLOGY AND CLIMATOLOGY

By F. W. Reichelderfer
Chief, U. S. Weather Bureau

GENERAL

Tremendous expansion of air power prior to and during the war and the great increase in transoceanic air transportation gave an unprecedented stimulus to meteorology, and its effect on the field in general will be remembered for many years. The sudden demand for trained meteorologists led to education at the professional level of a large group of young men with basic training in mathematics and physics. The increase in the number of professional meteorologists prompted leading men in the field to suggest reorganization of the American Meteorological Society into a strong professional organization that will insure continued progress in meteorology. The plan was formally approved, and the American Meteorological Society is now composed of two groups of members, professional and non-professional. The field of meteorology is certain to benefit by the changes which have been effected, and it is now ready to take its place with the other physical sciences.

RESEARCH IN WEATHER FORECASTING

Research in the field of meteorology, as in other wartime years, has generally been of a practical nature, with emphasis on the solution of meteorological problems of direct military significance. The wartime problems of meteorology, however, were like those of peacetime, though need was even more urgent for methods of preparing weather forecasts of greater accuracy and for longer periods of time. Associated with this was the demand for methods of measuring more accurately the characteristics of the free atmosphere, especially during times of adverse weather conditions.

Progress in improving weather forecasting techniques continued slowly, and there is no evidence that the methods yet developed are sufficiently reliable to predict the weather with useful accuracy beyond a few days in advance in most meteorological situations. Research into methods of preparing forecasts for periods of two to six days in advance by the use of charts of mean conditions, was continued by the United States Weather Bureau. Similar work was carried on in cooperation with the Weather Bureau by the Department of Meteorology of the Massachusetts Institute of Technology, where this method of extended forecasting was initiated seven or eight years ago. Work of this type is described in "Studies of the Motion and Development of Long Waves in the Westerlies," by Namias and Clapp, in the *Journal of Meteorology* for December, 1944.

SPECIAL PROBLEMS AND STUDIES

Advances in methods of preparing weather forecasts of greater accuracy for one or two days in advance have been minor. Research has been chiefly on special problems of relatively small areas and not on techniques of forecasting applicable to large regions of the world. The project for investigation of the formation of stratus clouds along the west coast of the United States was continued by the Department of Meteorology of the University of California at Los Angeles in cooperation with the Weather Bureau, Army Air Forces, and Navy. A study of the formation and development of storms in the Atlantic coastal region was made by the Department of Meteorology of New York University with funds provided by the Weather Bureau. The study included theoretical as well as practical aspects of the problems, and it is being continued under the sponsorship of the Army Air Forces. The investigation of the causes of thunderstorms in the central United States was continued by the University of Chicago.

Studies of a theoretical nature, normally carried on by universities or institutes, have not been numerous. Staff members of the various meteorological departments have been on leave in connection with special wartime assignments or busy with relatively heavy teaching loads. A study on horizontal mass divergence in atmospheric waves was completed at the University of California at Los Angeles, and an investigation into the methods for the determination of the field of vertical motion in the atmosphere was carried on at New York University.

The United States Weather Bureau, in its research on day-to-day forecasting, emphasized the application of engineering techniques to forecasting methods with the purpose of developing objective rules to replace or supplement the subjective methods now commonly employed. As a beginning, objective methods of forecasting minimum temperatures and occurrence of precipitation for several stations were devised.

Developmental work on meteorological instruments for measuring the characteristics of the upper air was carried on mainly by the Army Signal Corps, the Navy, and the University of Chicago. Application of recent developments in the field of electronics has provided new methods for determination of the wind in the upper air. Advantages of these new methods are that wind can be measured in and above cloud layers and during precipitation, and that the measurements at high altitudes can be made with greater accuracy. Work on problems in the measurement of temperature and humidity with various types of radiosonde was continued by the instrument laboratories of the Weather Bureau and the University of Chicago as well as by the Army Signal Corps. Some progress was made, but many problems remain unsolved.

METEOROLOGICAL TRAINING

To meet the needs of the Armed Forces for meteorological officers during recent years, intensive one-year professional courses in meteorology have been given by the several universities and institutes with meteorological departments. Through this training program, some 5,000 persons have been prepared for practical meteorological work. With the release of weather officers from the Armed Forces, meteorology, unlike other physical sciences, has an oversupply of persons with basic professional training. Therefore, schools offering professional courses are now discouraging those who wish to begin the study of meteorology, but are encouraging those who completed the special wartime courses to continue their study toward advanced degrees if they have the necessary ability.

INDUSTRIAL METEOROLOGY

A new field of meteorological service to private industry that has been made possible by technical progress during the last decade or two, and is now being opened up as meteorologists are released from the Army and Navy, is the private practice of applied meteorology. Business and industry can be served by company meteorologists in a continuous and specialized manner that is beyond the normal scope of Weather Bureau functions. The private consultant in meteorology can conduct individual company studies to find ways to increase production, to decrease operating costs, and reduce losses of perishable goods, through more intensive use of meteorological knowledge, current weather reports, and forecasts. A beginning has been made in the development of micrometeorology and localized weather forecasting for special uses. The results have been fairly satisfactory, and they give promise of lucrative practice in this relatively new private professional field.

UPPER AIR ANALYSIS

Analysis of the upper air during recent years in the United States has been carried on in part through constant level charts. For this purpose, however, many countries have employed constant pressure charts. The methods of analysis of these two charts are much alike, but the data used on them very different. In order to bring about international standardization in upper air analysis, for the purpose of facilitating the use of upper air data in weather forecasting and research, a change from constant level to constant pressure analysis was begun in the Weather Bureau on May 1.

CLIMATOLOGY

In connection with the long-range planning of the Armed Forces, the analysis of climatological data was accomplished on a large scale by improved methods, involving the recording of weather data on punched cards and summarization by machine methods. By this process, frequency distributions, summaries of means and extremes, and probabilities of occurrence with known reliability were determined quickly for all weather elements desired and for any region for which data were available. As a result, millions of weather observations are now recorded on punched cards, ready for further analysis, and methods of analysis have been developed. These need to be supplemented and utilized to get full value out of the climatological data in the interests of industry, agriculture, and business.

PUBLICATIONS

The Air Transport Association of America, through its Meteorological Committee, sponsored a new publication, the *Journal of Aeronautical Meteorology*. It will appear quarterly and is designed primarily as an outlet for technical and semi-technical papers in aeronautical meteorology.

The first issue of the *Journal of Meteorology*, the new periodical of the American Meteorological Society, appeared in February, 1945. This publication was established to provide a means for the dissemination of original papers in theoretical and applied meteorology. The American Meteorological Society will continue to publish its *Bulletin*, in which papers dealing with less technical aspects of the science will appear as well as survey papers, reviews, notes, and announcements.

The American Geophysical Union, which has a Section of Meteorology, began publishing its *Transactions* on a bimonthly basis instead of annually as in the past. The first bimonthly issue of *Transactions* appeared in August.

New books published during 1945 included: J. Holmboe, G. E. Forsythe, and W. Gustin, *Dynamic Meteorology* (New York, John Wiley and Sons); R. W. Mudge, *Meteorology for Pilots* (New York, McGraw-Hill); F. L. Caudle, *Workbook in Elementary Meteorology* (New York, McGraw-Hill).

AMERICAN EXPLORATION

By Robert M. Brown
Rhode Island College of Education

AMERICAN MUSEUM OF NATURAL HISTORY

Nyasaland.—The American Museum has announced the resumption of expeditions to distant lands, which had been discontinued since 1941, by an expedition to Nyasaland, South Africa, under the leadership of Arthur S. Vernay. The personnel, in addition to the director, include Dr. Harold E. Anthony, mammalogist, Leonard Brass, botanist, and Captain Guy Shortridge, director of the Kaffrarian Museum of King William's Town, South Africa. Specimens of the smaller animal life and of the plants will be collected with the object of having on record as complete a picture of the flora and fauna of Nyasaland as can be obtained. The expedition planned to be in the field and ready to work at the beginning of the dry season in April, 1946. The collections will be deposited in the Kaffrarian Museum, the New York Botanical Gardens, and the American Museum.

Archbold Biological Station.—The Archbold Expeditions, Inc., withheld from expeditions during the war, established a home base in south-central Florida a few miles west of Lake Okeechobee on a 1,000-acre estate, the gift of John A. Roebling. The Archbold Expeditions have made many successful journeys to the East Indies for the purpose of collecting mammals, birds, and plants, and plans had been made to continue this work, but because the war prevented the fulfillment of these, the Florida Station was established as a permanent home for the expedition organization, and the attention of the personnel was directed towards biological researches within the United States. Such studies as the life history of the round-tailed muskrat, collections of insects and spiders, life history of the Florida jay, and the ecology and behavior relations of the associations of ants and termites, have been undertaken.

NEW YORK BOTANICAL GARDEN

The Staff of the Garden is planning, now that the war is over, for a greater extension of display areas in order to carry on more work of world-wide scope and to provide more ornamental displays and educational facilities in the field of botany and gardening. During 1945, some explorations were undertaken in North and South America. Dr. Bassett Maguire, curator of the Garden, conducted an eight months exploration in British Guiana and Surinam; E. J. Alexander, assistant curator, led an expedition for botanical and horticultural materials in southern Mexico; and Dr. W. H. Camp assistant curator, collected specimens of plants in the Ecuador highlands.

SMITHSONIAN INSTITUTION

During the omission of the ordinary explorations of the Institution, the members of the Staff were engaged in gathering technical information for Army and Navy uses. However, the three observing stations of the Astrophysical Observatory were maintained with some difficulty because of the shortage of workers, in order to obtain a continuous record of the solar constant of radiation.

NATIONAL GEOGRAPHIC SOCIETY

The Society, with the cooperation of the Smithsonian Institution, continued its work in Mexico. Under the leadership of Dr. Matthew W. Stirling the seventh expedition conducted studies east of the Isthmus of Tehuantepec. Carved basalt heads of great size have been discovered dating back seven centuries, and near Tres Zapotes, Mayan symbols bearing the date of 291 B. C. were unearthed. Thus over the years important evidence of pre-Columbian cultures have been gathered.

THE COLLEGES

Dr. Alden H. Miller, curator of the Museum of Vertebrate Zoology and professor of Zoology at the University of California, was in Colombia early in 1945 collecting specimens of land birds and small mammals.

Dr. George S. Myers, professor of Biology at Stanford University, returned from Brazil where he spent two years. Among other activities, he led a number of ichthyological explorations in different parts of the country under the sponsorship of the Museum National at Rio de Janeiro.

Dr. Walter H. Bucher, professor of Geology, Columbia University, is in Venezuela at the request of the Venezuelan Government to aid in the preparation of a tectonic map of the country. The Venezuelan Geological Survey, various oil companies operating in Venezuela, and the Geological Society of America are concerned in the project.

GUATEMALA

The Government of the United States and Guatemala have signed an agreement for a long term experimental station in Guatemala to promote cinchona cultivation and to undertake other crop production investigations. Guatemala will provide land, laboratories, and the necessary accessories and the United States the scientific staff.

MEXICO

A United States Army Sikorsky helicopter made flights during the summer over Paricutin volcano to study the performance of this machine under conditions of high altitude, turbulence, and temperature similar to those of the Pacific war area, and to obtain close views of a volcano in action. For the former purpose Captain George D. Colchagoff and Flight Officer Roy P. Beer conducted the flights, and for the second, Dr. Ezequiel Ordonez, Mexican geologist, Dr. L. C. Graton, Harvard, and Dr. W. F. Foshag, United States Geological Survey, were present to take observations. The helicopter offered an unusual opportunity to study the volcano in close contact since it could hover within 300 feet of the rim. Observations of lightning flashes in and out of the crater were made, records of plant life within five miles of the crater were taken, and still and motion pictures of the activity of Paricutin were obtained.

CANADA

Pére Arthème Dutilly, missionary-botanist, with Abbé Ernest Lepage

Dagenais, Rimouski College of Agriculture, and Prof. Pierre Dagenais, Jacques Cartier Normal School, completed a journey across the northern tip of the Labrador peninsula from the gulf of Richmond to Ungava Bay, a traverse of 400 miles. Pére Dutilly collected over 4,000 specimens of plants which will be taken to the Catholic University of America in Washington where he is stationed during the winter months. The trip was in canoes up the Stillwater river and down the Larch and Koksook rivers to Ungava Bay.

PERIODICAL PUBLICATIONS

American Mineralogist
450 Ahnaip St., Menasha, Wis.
American Scientist
Yale University, New Haven, Conn.
Bulletin of the Geological Society of America
419 W. 117th St., New York City.
Economic Geography
Clark University, Worcester, Mass.
Economic Geology
Natural History Bldg., Urbana, Ill.
Geographical Review
American Geographical Society, Broadway and 156th Street, New York City.
Journal of Geography
3333 Elston Ave., Chicago, Ill.
Journal of Geology
5750 Ellis Ave., Chicago.
Journal of Geomorphology
Columbia University, New York City.
Journal of Paleontology, The
U. S. National Museum, Washington, D. C.
Journal of Terrestrial Magnetism and Atmospheric Electricity
Johns Hopkins Press, Baltimore.
Mining and Metallurgy
29 West 39th Street, New York City.
National Geographic Magazine
National Geographic Society, Washington, D. C.
Nature Magazine
295 Madison Ave., New York City.
Petroleum World
412 West Sixth Street, Los Angeles, Calif.
Science
Smithsonian Institution Building, Washington, D. C.
Scientific Monthly
Smithsonian Institution Building, Washington, D. C.
Travel
116 East 16th Street, New York City.
Travel America Guide
71 Vanderbilt Ave., New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Association for the Advancement of Science, Smithsonian Institution Building, Washington, D. C.
American Assn. of Petroleum Geologists, Box 979, Tulsa, Okla.
American Geographical Society, Broadway at 156th St., New York City.
American Meteorological Society, Blue Hill Observatory, Milton, Mass.
Appalachian Mountain Club, 5 Joy St., Boston, Mass.
Association of American Geographers, University of Minnesota, Minneapolis, Minn.
Explorer's Club, 10 W. 72nd St., New York City.

GEOLOGICAL SOCIETY OF AMERICA, 419 W. 117th St., New York City.

NATIONAL GEOGRAPHIC SOCIETY, 1146 16th St., N.W., Washington, D. C.

OCEANOGRAPHIC LABORATORIES, University of Washington, Seattle, Wash.

PALEONTOLOGICAL SOCIETY, THE, Johns Hopkins University, Baltimore, Md.

SCRIPPS INSTITUTION OF OCEANOGRAPHY, La Jolla, Calif.

SEISMOLOGICAL SOCIETY OF AMERICA, University of California, Berkeley.

SOCIETY OF ECONOMIC PALEONTOLOGISTS AND MINERALOGISTS, University of Illinois, Urbana, Ill.

WOODS HOLE OCEANOGRAPHIC INSTITUTE, Woods Hole, Mass.

DIVISION XXI

CHEMISTRY AND PHYSICS

PHYSICAL CHEMISTRY

By Hugh S. Taylor
Professor, Princeton University

GENERAL

As in preceding years, no attempt will be made to review the whole field of general and physical chemistry. Wartime restrictions still severely limit the publication of important work. Certain selected topics of broad general interest have been chosen to illustrate the nature of present progress. It must be remembered that such selection is an individual one, often dependent to a large extent on the writer's own interests. Over a period of years, it is hoped, however, that the more important lines of advance would be reviewed.

NEW ELEMENTS

The Smyth report has made known the existence of the new man-made elements, neptunium No. 93 and plutonium No. 94 by successive elimination of two β-particles from U239 obtained through neutron capture by U238. Their properties will possibly be discussed elsewhere in this annual report. Prof. Glenn T. Seaborg of California has announced recently, in Chicago, (*Chem. and Eng. News,* Dec. 10, 1945) that neptunium exists in three isotopic forms with masses 239, 238, and 237 of which the first is the important precursor of plutonium 239. The corresponding isotopes of plutonium studied have masses 239 and 238. The isotope of neptunium of mass 237 does not emit a β-particle to give a plutonium isotope of mass 237, but is, on the contrary, a very long-lived element (half-life 2.25 x 10^6 years) decaying by emission of an alpha-particle. The man-made plutonium 239 exists in nature. It has been shown to be present in pitchblende to the extent of 1 part in 10^{14} parts. It is present, in spite of its short life, probably because it is continuously formed by the absorption in U238 of some of the neutrons which are always present. Seaborg also reports the identification and properties of the elements No. 95 and No. 96, in the products resulting from the bombardment of U238 and plutonium 239 with high energy (40,000,000 electron volt) helium ions available in the Berkeley cyclotron. As of today, the periodic system consists of 96 identified elements; that is, there is now positively known at least one isotope, stable or radioactive, for each of the elements with atomic numbers from 1 to 96, inclusive.

During the year a paper by J. F. Flagg and W. E. Bleidner (*J. Chem. Phys., 13,* 269, 1945) indicates how the new techniques will be utilized to study the properties of man-made elements available only in micro-quantities. Their researches were directed towards the physical and chemical properties of the element masurium, No. 43, announced in 1925 by Noddack and christened with a name reminiscent of a German victory in the First World War. Perrier and Segrè in 1939 showed that it was a radioactive product of neutron and deuteron bombardment of molybdenum, with properties which cast doubt upon the original report of Noddack. Flagg and Bleidner have now shown that, in solutions which contain no more than one million millionth of a gram-atom per liter of this element in their solutions, they could determine the conditions of electro-deposition of this element, the potentials under which it was deposited; the reactions of its compounds with zinc, iron, nickel, tin, lead, copper and mercury metals, hydrochloric acid and stannous chloride were also determined. This research is a pattern of what may be expected when data on the new man-made elements are released. It indicates how scientists were able to design huge plants for the production of plutonium from properties ascertained with micro-milligrams of material that could be adequately housed on a pin-head.

TRACER CHEMISTRY

The uranium fission process will provide chemists with a wide variety of isotopic species with which to study mechanism in all types of chemical reactions. The earliest tracer techniques were instituted with the naturally occurring radioactive elements. The isolation of stable isotopes, such as heavy hydrogen, heavy carbon, and heavy nitrogen, extended the available materials, the mass spectrograph being the essential analytical tool in these cases. The earliest nuclea disintegrations with alpha particles, protons, deuterons, and neutrons on the elements below the uranium series gave as many as 350 radioactive isotopes of atomic numbers between 1 and 90.

These are all potential agents for tracer researches. As an example, may be cited a recently published research in which radioactive iodine has been employed (Noyes, Dickinson, and Schomaker, *J. Am. Chem. Soc.*, *67*, 1319 (1945)). Iodine is an agent for the catalytic transformation of one structural form (cis) of the compound di-iodoethylene $C_2H_2I_2$ into the other form (trans). In the former (cis), the two iodine atoms are close to one another; in the other (trans), they are as far away from one another as possible. The interconversion is assisted by the presence of elementary iodine. If this is used with some included radioactive iodine as tracer, it can be shown (a) that the reaction either by heat or by light is determined by the quantity of the iodine that is present as atoms, (b) that simultaneously with the change in structure there is also an exchange process between the iodine atoms in the molecule di-iodoethylene and the atoms from the molecular elementary iodine, this latter process being easier and more rapid than the structural rearrangement.

This result with iodine parallels earlier experiments with heavy hydrogen, deuterium, in which it was shown that deuterium exchanges readily with the light hydrogen present in ethylene, more readily, under certain circumstances, than it adds to hydrogen to form the saturated compound, ethane. This earlier work showed that deuterium exchanges with the hydrogen in ethane much more slowly than with the hydrogen in ethylene. The parallel result with iodo-compounds is now forthcoming from the new research which shows that iodine atoms do not exchange with the saturated compound ethyl iodide under conditions where they exchange readily with the iodine in the unsaturated di-iodoethylene. Such observations are adding materially to one's knowledge of bond reactivities in compounds.

INFRA-RED SPECTROSCOPY

Since Robert Bunsen first made use, in 1859, of the spectroscope for the chemical analysis of metal salts, its use in this field has been constantly expanded. Used initially for identification of the light emitted by such ions as sodium and potassium when heated in the Bunsen flame, the spectroscope was extended to the ultra-violet region, and absorption spectra of many organic compounds became important analytical tools. Most recently the development of sources of infra-red radiation and of the techniques of spectral analysis in this region of the spectrum has permitted the identification of individual units in the total structure of large organic molecules by their capacity to absorb infra-red light of particular wave-lengths identified empirically with a particular arrangement of two or more atoms in such a complex molecule.

During recent years the usefulness of infra-red radiation and its power for qualitative and quantitative analysis have become widely appreciated, and its application to technical and industrial objectives has been rapidly extended. A simple example is the analysis of a mixture of butane and iso-butane, the latter of which is an agent in the production of high-octane fuels. These substances have the same atomic make-up, C_4H_{10}, are separable but with difficulty, since they boil closely together, but they are structurally different arrangements of the same atoms. This difference in structure is reflected in a difference of infra-red spectra with absorption bands at different infra-red wave lengths. By measurement of the absorption of light, at about 1170 wave numbers, absorbed strongly by isobutane but not by butane, a rapid and continuous analysis of the isobutane content of a mixture of these two gases can be secured.

The method has been applied recently in fields where previously ultra-violet absorption spectra were most frequently employed, for example, in the aromatic carbon compounds, derivatives of benzene. With these materials the advantage secured is that the absorptions in the infra-red are sharp characteristic bands whereas the ultra-violet are broad and continuous and frequently overlapping one another. Mixtures of cresols and, also, mixtures of xylenes recovered as by-products in the production of toluene from petroleum sources, are examples to which infra-red analysis has been applied. Another interesting example is the case of the new competitor to DDT developed by the British, called by them gammexane or 666. The active insecticide is hexachloro benzene, $C_6H_6Cl_6$, each carbon atom in a ring having one chlorine and one hydrogen attached to it.

There are at least four different arrangements of these atoms in the ring structure, and only one of them, the gamma form, has the desired powerful toxicity. Infra-red analysis is one tool of control of the synthetic methods used in the preparation of this product. This particular example forms an interesting example of secrecy in scientific matters during wartime. In the *Transactions* of the Faraday Society (April-May 1945) it was written of as "a spectacular example of outstanding interest and significance . . . of a crude solid product containing four stereoisomers . . . the details of this analysis will be published at some future date, but at present only the following notes may be given." By October 1945, the full details were published (See *Endeavor,* Volume IV, No. 16, pp. 148, 154).

Infra-red analysis has also entered the field of polymeric chemistry. As the polymerization proceeds from the single molecules to the polymer product, since new modes of linkage are produced in the polymer structure, these give rise to new absorption bands which may therefore be made the basis of analysis. In natural and synthetic rubber there are two centers of growth of polymeric materials. The growth may be end to end or straight chain, which the chemist identifies in the case of butadiene as 1-4 growth, or it may give rise to side chains which are identified as 1-2 growth. These two growths are important factors determining the properties of the polymer produced. The proportions in a product can be immediately determined by infra-red analysis because the different structural growth gives characteristic and different absorptions in the infra-red. In the same area are researches on the infra-red spectra of rubber in various stages and types of vulcanization. Studies have been initiated on the infra-red absorption spectra of coals in very thin sections, in pyridine extracts, and in "shock-heater" films, essentially a high-vacuum distillate deposited on a rock-salt plate. There are conspicuous infra-red differences between the thin sections and the others, pointing to chemical reorganization during solvent extraction and high-vacuum distillation.

RAW MATERIALS FOR SILICONE POLYMERS

In the last report the advent of a newcomer in the field of polymers was recorded with announcements of rubbery silicones by the General Electric Co. and silicone oils, waxes, varnishes, and resins by the Dow-Corning Corporation. During 1945, there were releases indicating methods whereby the single molecules from which such polymers can be constructed are manufactured. According to a series of papers issued from the Research Laboratories of the General Electric Co. (*J. Am. Chem. Soc.*, *67*, 963, 1057, 1545, 1772, 1810, 1813, 1945) such materials result from interaction of elementary silicon with a variety of organic halides preferably in presence of a catalyst such as metallic copper. Thus with methyl chloride and a sintered mass of silicon and copper powder, there is active interaction around 300°C with products approximating to $(CH_3)_2SiCl_2$ with more and less highly methylated constituents also present in the mixture. The dichlor dimethyl silicon compound is one of the important raw materials for preparation of the silicone polymers. Other groups can be substituted for methyl by analogous reactions. Bromine can be used in place of chlorine. The products are useful intermediates in the preparation of many other organosilicon compounds. The copper catalyst probably reacts first with the organic chloride, giving cuprous chloride and a copper methyl. These are the stages on the road to the final reaction of silicon with the chlorine and the organic radical. When chlorobenzene is used instead of methyl chloride, silver is preferred as catalyst to copper.

The work has been extended also to the reaction of organic chlorides with the tetrachloride of silicon, $SiCl_4$. In this case a metal such as aluminum must be used which, in the process of reaction, is converted into aluminum chloride, the alkyl chloro compounds of silicon being simultaneously produced. There are gradations in the ease with which the organic radical can be introduced into the silicon chloride, the tetrachloride being the most difficult, the methyl trichloro more readily and the dimethyl dichloro quite easily. On the other hand, the reduction of the tetrachloride by hydrogen is the easiest, while the hydrogenation of the dichloro dimethyl compound has not yet been successfully accomplished. This contrast in ease of methylation and hydrogenation is doubtless significant and points to a divergence of mechanism in the two cases.

POLYMERIZATION PROCESSES

Publication activity in these areas is increasing as wartime restrictions are increasingly removed. There was a steady stream of articles throughout the year dealing with various phases of this important area of present effort. Typical, for example, is the October issue of the *Journal of the American Chemical Society* which contains three important articles on this topic. Kolthoff and Dale discuss the mechanism of emulsion polymerization, which is the technique of government synthetic rubber production. Lewis, Mayo, and Hulse discuss the copolymerization of pairs of materials such as acrylonitrile, methyl methacrylate, styrene and vinylidene chloride. They use their data to confirm their previously formulated mechanism for the growth of the chains of molecules of which the polymers are composed. The results show clearly that the reactions of the free radicals, which are the growing units, are quite specific, both the ratio and the order of reactivity changing as the radical is changed. There is no simple relation between the relative tendencies of two monomers to enter a copolymer and their individual rates of polymerization with themselves. Walling and Briggs in the same issue of the *Journal* set up equations to apply to the composition of a copolymer from systems containing more than two monomers, and test their equations with data on copolymers containing three or four components drawn from the series mentioned above as studied by Lewis, Mayo, and Hulse. These researches demonstrate an increasingly deliberate scientific progress in this technically important area of effort.

PHYSICS

By Thomas H. Osgood
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GENERAL

The use of atomic bombs (see Atomic Bombs p. 127) to hasten the end of the war against Japan focussed the attention of the general public, as never before, upon Physics. It is important to point out, however, that the atomic bomb is, in itself, not a discovery, but rather an engineering development of earlier discoveries of physics. Every few years since 1895 some important discovery in atomic physics has been made, each one a triumph of the human intellect. It is the sum total of these discoveries, including that of uranium fission in 1939, which made possible the development of atomic bombs.

During years of war, the ceaseless demand for new weapons and new methods of defense against enemy weapons involves an increasingly thorough exploitation of previous scientific discoveries. Between 1941 and 1945 this process of developing scientific discoveries into devices of practical military utility took place on such a vast scale and at such a furious pace that, to paraphrase the words of the 1944 Nobel prizewinner, Professor Rabi, the inheritance of technology has been nearly spent, and further advances, whether for peaceful or warlike purposes, can come only from further advances in fundamental science.

In the United States, during the war years, research in physics, as distinct from development work, was at a low ebb. Whether or not this was the case in most other progressive countries is not generally known. Two items are known, however, which have a bearing on the matter: First, the number of young scientific workers in training between 1941 and 1945 in the United States was proportionately much smaller than in many other countries, partly owing to the inflexibility of the United States selective service regulations; second, individual reports of a recent goodwill visit of British scientists to the Soviet Union indicate that many of the fundamental problems of physics which, in 1945, are claiming the attention of scholars in the United States, in Britain, and in the Soviet Union, are the same, and that there is an eagerness among scientists of *all* nationalities to resume a free interchange of scientific information.

The shortage of physicists and of other high grade scientific personnel in the United States is acute. Because of the low salaries which they are able to offer in comparison with industry and government service, universities and colleges are likely to be the chief sufferers. This will make the shortage a double-edged danger by retarding the education and training of potential scientists at a time when they are in great demand and when their profession is achieving an economic status more in keeping with its importance than formerly. To encourage the return of scientists to the universities, several agencies are making funds available for research in universities by men who left their academic posts for urgent war assignments; and to take care of the further training of young scientists whose studies were interrupted, various scholarships and fellowships have been established.

THE NUCLEUS

In 1945, the most fundamental particles of physics were the proton and the neutron. Of the other sub-atomic particles, positive and negative electrons can be created from radiation; mesotrons, so frequently found in cosmic rays, have but a transient existence; alpha particles are a combination of protons and neutrons. True, a proton can switch to a neutron or a neutron to a proton during the decay of a nucleus, but this phenomenon in no way deprives them of their fundamental characteristics. From time to time since 1938 papers have been published postulating the existence of the neutretto, an uncharged particle of intermediate mass, or offering experimental evidence for the occurrence of the elusive uncharged neutrino. Evidence for a new neutral radiation, that is, for the occurrence of detectable neutral particles produced by a cyclotron is presented by Groetzinger, Kruger and Smith (*Physical Rev.* 67, 52). Near the target of the Illinois cyclotron they set up particle counters which could be shielded from the effects of previously recognized particles. In this way, the effects of slow and fast neutrons, and of gamma rays on the counters, were definitely excluded, but there still remained some radiation more penetrating than neutrons in water or gamma rays in lead. Bolstered by a report from Schein of the presence of mesotrons of low mass among cosmic rays, the three investigators attribute the observed residual particles to a neutral radiation which they suggest may consist of uncharged mesotrons of low mass, counterparts of the new charged mesotrons discovered by Schein.

After a wartime interlude of significant suppression, the subject of nuclear fission reappeared in *The Physical Review.* Lassen sent from Bohr's laboratory in Copenhagen (*Physical Rev.* 68, 142) the results of experiments designed to determine the net electric charges carried by the recoiling fragments resulting from the fission of uranium atoms. This measurement was achieved by spreading the charged, moving, nuclear fragments in the field of a cyclotron which itself produced the neutrons which accomplished the disintegration. It could have been guessed that the violence of the nuclear reaction would leave the fragments, immediately after fission, in a highly excited state, but the extent of this excitation was a matter of conjecture. Lassen's observations showed that the lighter group of particles carried net positive charges about 20 times, and the heavier group of particles about 22 times the electronic charge. This means that if krypton be taken as representative of the lighter group, the new krypton atom is, at the instant of measurement, stripped of 20 of its normal complement of 36 electrons; and if barium be considered typical of the heavier group, 22 of its 56 electrons are still missing. The results must be regarded as approximate only, for undoubtedly, as the fragments fly through some matter on their way to the recorder, frequent changes occur in their net charge. This statement can be made with some assurance, for Kapitza showed, as long ago as 1925, that even so simple an object as a flying alpha particle could change its charge as it ploughed its way through a gas.

Another advance in nuclear physics is the artificial manufacture by Seaborg of elements numbered 95 and 96 in the periodic table. These are of academic interest at the moment. Only microscopic quantities have been produced, but enough to discover some of their special properties, and to give proof that they existed before, though without being detected, in certain radioactive ores.

The cyclotron and the betatron, the two heavy magnetic machines for the production of high speed nuclei and electrons respectively, may soon be supplemented by another which combines some of the features of each. McMillan, its inventor, calls it the synchrotron because in certain respects its performance should be analogous to that of a synchronous motor. He outlined its operation as follows (*Physical Rev.* 68, 143). Because of the relativistic increase of mass with velocity, heavy particles being accelerated in a cyclotron will gradually fall out of phase with the high frequency accelerating field between the dees. This condition compels particles of definite energies, after they have circled many times, to stay in equilibrium orbits from which they can not be removed by the normal operation of the cyclotron. Given a set of particles thus circulating in an equilibrium orbit, all that is necessary in order to accelerate them further is to change the main magnetic field, or to vary continuously the frequency of the accelerating voltage between the dees. Because of the small mass of electrons, an accelerator for these particles could conveniently employ a changing magnetic field, while for heavier nuclear particles a frequency-changing device would be appropriate. Though the design of the synchrotron is still in the pencil-and-paper stage, McMillan stated that the instrument "offers the possibility of reaching energies in the billion volt range with either electrons or heavy particles." Its chief merit is that it will not be limited by the relativistic energy restrictions which prohibit the attainment of such high energies in the conventional cyclotron; rather, it uses these restrictions to proceed to still higher energies.

Turning now to matters which do not probe so far into the future, several papers were published dealing with the disintegration or excitation of nuclei by x-rays and by electrons, and with the decay processes of the products of the fission of uranium. Considerable attention has been given to nuclear isomers. Among artificially radioactive substances, it was found first in the case of bromine, in 1936, that two atoms of the same element, having the same characteristics with respect to mass and nuclear charge, could appear in different initial energy states, as evidenced by the different periods of radioactive products to which they gave rise. The study of such isomers and the cataloging of their decay periods is a necessary preliminary to an understanding of the energy levels of the nuclei and their inter-relations. A curious regularity, so far apparently unexplained, has been found in the grouping of elements which exhibit isomerism in consecutive threes, such as silver, cadmium, and indium; and platinum, gold, and mercury. Wiedenbeck (*Physical Rev.* 67, 92) states that it is probable that krypton, strontium, and rubidium will form another of these triads.

X-RAYS

The most commonly known uses of x-rays are in diagnostic and therapeutic medicine, and in the radiography of metals. During the years 1941-45, many developments were made in the application of x-rays in these fields. X-ray tubes can now produce such powerful radiation that it is possible to make x-radiographs in much the same way as "instantaneous" photographs are made with an ordinary camera. Here is a powerful tool for investigating the operation of mechanical devices in which high relative velocities are encountered, under actual working loads. For example, a centrifuge can be examined while rotating at high speed, and undesirable distortion of its parts can be detected.

In physics laboratories, however, much more basic problems remain to be solved. For example, when an electron of known energy impinges upon a known distribution of atoms of known atomic weight, what is the chance that an x-ray photon of specified wavelength will be generated, and in what direction will it travel? This is a fundamental question to which an answer can yet be given only in principle. Progress towards putting the subject on a numerical basis was reported in a paper by Kirkpatrick and Wiedmann. (*Physical Rev.* 67, 321). Their attack was from the theoretical side; they provide a series of graphs and tables which will be of great help to experimental workers who need to compare their observations with theoretical predictions. It is but one more step in the long journey to a full understanding of the extra-nuclear structure of the atom and of the changes it suffers when x-rays are emitted.

At a different level of practical application it is to be noted that the simple Cauchois spectrograph is coming into more general use. This is a curved-crystal spectrograph invented in 1932 by Mlle. Cauchois in France. It possesses a high radiation-gathering capacity, yet has very good resolution, is easy to construct and adjust, and is almost portable. Edwards, Pool, and Blake (*Physical Rev.* 67, 150) used it in the identification of artificially radioactive materials during their decay. While they decay, many such atoms emit characteristic x-rays. Absorption methods can only locate the parent element approximately in the periodic sequence. To be really useful, the detecting device must be able to distinguish between atoms which occupy adjacent places in the periodic table. Only spectrographic methods can succeed. Any spectrograph of the ordinary slit type fails by reason of inadequate intensity, for the radioactive samples are usually weak. Edwards, Pool, and Blake have found the Cauchois spectrograph effective in the region 0.2A to 2.3A, thus covering all the elements from vanadium upwards, either in the K or the L series. In particular, they identified the x-rays emitted during the decay of Cd, In, and Cu. Reference lines were easily put upon the film by short exposures direct from an appropriate x-ray tube.

The year's progress included further work by Lonsdale (*Nature,* 155, 572) on the estimation of the perfection of crystals, especially diamonds. The word perfection is here used to denote the lack of a mosaic structure, and has little if any bearing on the appearance or value of a gem. In 1935, Kossel and Voges (*Ann.d.Physik,* 23, 694) in Germany, discovered the divergent-beam method of x-ray crystallography, in which a highly divergent beam, from a focus near or in the crystal itself, creates a complicated network of sharp curved lines on a photographic plate placed nearby. It turns out that the sharpness of the lines thus obtained is dependent on the presence or absence of mosaic structure in the crystal. Lonsdale finds that it is even possible to detect comparatively large regions of mosaic structure in otherwise perfect crystals by the local blurring of the network lines on the photographs.

COSMIC RAYS

Millikan, Neher and Pickering (*Physical Rev.* 66, 295) report that they have only now had time to analyze observations made five years ago with electroscopes carried to high altitudes by balloons in various places in the United States and Canada. They interpret their results as a confirmation and extension of the theory of the origin of the primary rays proposed by them in 1942. According to this theory, cosmic rays are produced in interstellar space by the transformation of the masses of atoms sparsely distributed there into proton or electron pairs. Different atoms would, of course, give rise to particles of different energies. There are, according to astronomers, six fairly abundant kinds of atoms there, *viz.* hydrogen, helium, carbon, nitrogen, oxygen, and silicon. The rays due to hydrogen are too weak to reach the earth anywhere, through the protecting geomagnetic field. Consequently, the primary spectrum of cosmic ray particles should be discontinuous, and should consist of five bands with energies appropriate to the annihilation of the last five atoms of the six mentioned. The most recent report by Millikan, Neher and Pickering offered definite evidence for the helium annihilation rays which occur only north of magnetic latitude 54°. They also related the observed variation in the intensity of the rays at such a latitude to the fluctuations of the earth's magnetic field which cause the latitude of entry of these rays to vary a few degrees. Thus, at any particular station, close to 54° N magnetic latitude, irregular variations in cosmic ray intensity are to be expected.

The evidence thus far presented by these three authors is not, however, entirely conclusive. Kusaka (*Physical Rev.* 67, 50), for example, has made some calculations of the cosmic ray intensity to be expected at various latitudes, on the assumption of a continuous energy spectrum of the primary particles, the number of particles in any small energy range varying in general as the inverse cube of the energy. He then compared the results of his calculations with the experimental observations of Millikan *et al.*, and was led to the conclusion that the agreement between his theoretical calculations and their experimental results was within the experimental error of the observations. The implication of Kusaka's work is that the experimental observations of Millikan *et al.*, could be produced by a *continuous* energy distribution of the primary cosmic ray particles, and that the deduction of a discontinuous primary energy distribution is therefore only one possible interpretation.

The intensity of cosmic rays is not constant at any one location. There are sudden temporary spurts of energy which are interpreted as being caused by passing showers of particles. The theory of the production, frequency, energy, and lateral spread of a shower is related to the energy spectrum of the shower-producing agent. A recent series of experiments by Lewis (*Physical Rev.* 67, 228) involved the observation of bursts of ionization simultaneously in two large ionization chambers, whose horizontal separation at any one altitude could be varied. "The results of this experiment," states Lewis, "strongly indicate the presence of showers with very small extension of their high density region. Such showers probably originate far below the top of the atmosphere, which means that they must be started by high energy electrons or photons of secondary origin. A possible process which could produce electrons at great depths below the top of the atmosphere is the disintegration of a mesotron of very short mean life." The existence of such mesotrons was proposed in Møller and Rosenfeld's theory of nuclear forces. The experiments are significant in that they suggest the existence (admittedly transient) of a new type of particle. Other lines of evidence point in the same direction.

CREATION OF MATTER

The explosion of atomic bombs aroused considerable popular interest in the transformation of matter into energy, following Einstein's equation $E = mc^2$, developed in 1905 as a consequence of the special theory of relativity. One aspect of this transformation, the creation of positive and negative electron pairs from radiation, is a subject of frequent scientific study. In order that the laws of conservation of momentum and energy may be satisfied, this creation of pairs must take place in the field of some other particle, usually a nucleus. The formation of positive and negative pairs in the field of an electron has not been so commonly observed (for example in cloud chambers) although a few rather inconclusive examples of the process have been reported since 1938. In the course of a study of the gamma rays emitted during the decay of radioactive sodium to magnesium, Ogle and Kruger (*Physical Rev.* 67, 282) found two very satisfactory examples of pair production in the field of an electron. When such an event occurs, a triple track is formed, for the electron in whose field the transformation takes place must carry away some of the momentum of the primary photon in the same general direction as that of the created pair. The threshold gamma ray energy for the process, as first calculated by Perrin, is $4mc^2$, where m is the positron or electron mass and c is the velocity of light. This corresponds to 2,040,000 electron volts. Now the gamma rays from radioactive sodium have various energies, including a strong line at about 2.6 Mev. Hence the gamma rays have enough energy for the process, with about 0.6 Mev left over to give kinetic energy to the particles, which therefore make good tracks. Ogle and Kruger checked carefully the energies and the components of momentum of the two triplets found during their experiments and verify Perrin's calculation to an accuracy of a few per cent.

ORGANIC AND INORGANIC CHEMISTRY

By Chester Merle Suter
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GENERAL

The low point in the quantity of chemical research publications in this country for the war period was reached during the latter part of 1944 and early 1945. After the end of the Japanese war (August), publication volume began a slight upturn. Description of some of the research work done during the war is finding its way into the various regular channels such as the *Journal of the American Chemical Society* and other periodicals. Other extensive research projects will be described in comprehensive monographs. For example, the work on the synthesis of penicillin, which was a collaborative project, and also the large amount of antimalarial research carried out under the auspices of the Office of Scientific Research and Development are expected to be put into monograph form during the next few years. This seems necessary because adequate reports on work in certain projects would make it impossible for journals to carry the publication load.

PROPOSED NATIONAL RESEARCH FOUNDATION

As a consequence of the report by Dr. Vannevar Bush, director of O.S.R.D., to the President on a "Program for Post-war Scientific Research" several bills have been introduced in the Senate dealing with the establishment of a National Research Foundation designed to lend government support to scientific research in various fields. The details of these bills have been the object of much discussion on the part of prominent scientists and others who are interested. The manner in which the Foundation is established is of importance, as it will determine the pattern for government support of fundamental research for many years. Any large scale Federal research program will greatly increase the already serious shortage of competent scientists. This shortage, rather than a deficiency of funds, either public or private, will limit the research carried out in chemical and other fields during the next decade. Perhaps the most immediately helpful activities of the proposed Foundation will then be the aid it gives to universities in the training of students and to scientific societies in the publication of the results of research.

VANADIUM TETRACHLORIDE

The interesting properties of vanadium tetrachloride have been emphasized by Simons and Powell (Pennsylvania State College). The formula, VCl_4, corresponds to a free radical structure which is supported by the intense red color of the compound. It is not salt-like in behavior, distilling at 152° under atmospheric pressure with some decomposition. By heating at 140° and sweeping out chlorine with dry carbon dioxide, conversion to vanadium trichloride is complete. In carbon tetrachloride solution at a low temperature freezing point, measurements indicate that the vanadium tetrachloride exists chiefly as the dimer, V_2Cl_8.

MANGANESE CARBIDE

Several of the carbides, *i.e.* compounds containing only a metal and carbon, have great commercial value. However, manganese carbide (Mn_3C) has received little attention since the pioneer work of Moisson in 1896 until 1945. Myers and Fishel (Vanderbilt University) report that the reaction of water with this compound gives considerably different results than originally indicated; 75 per cent of the gases evolved is hydrogen and the remainder mostly methane and ethane. When hydrochloric acid was substituted for water the hydrogen content rose to 95 per cent. In addition to the gaseous products, part of the carbon was converted into free carbon and liquid hydrocarbons when acid was present in the hydrolysis mixture. The hydrolysis products of carbides have long been of interest in connection with one theory of the origin of petroleum. Hydrocarbons are usually important among the hydrolysis products of carbides.

HYDROCARBON CHEMISTRY

New and interesting features of hydrocarbon chemistry continue to be described in the literature. Several surprising new reactions have been described by Kharasch and co-workers (University of Chicago). They find that α-olefins, such as 1-octane, react with carbon tetrachloride or chloroform in the presence of a peroxide, such as acetyl peroxide, by addition of the halogen compound to the olefin bond. For example, chloroform with 1-octane yields 1,1,1-trichlorononane, a compound which would be very difficult to prepare by hitherto known methods. In other reactions, methyl dichloroacetate was found to condense with an α-olefin to yield a corresponding methyl alkyldichloroacetate. Furthermore, trichloroacetyl chloride reacts with an α-olefin to yield an α,α-dichloro-β-chloroacyl chloride, a type of compound formerly unknown. Experimental details of this reaction have not yet been published.

In an extension of peroxide-catalyzed reactions, it was found that olefins react with phosphorus trichloride to give chloroalkylphosphorus dichloride in good yields. There has not been available previously any method for preparing these compounds.

Schmerling (Universal Oil Products) continued his interesting work on paraffin hydrocarbon reactions. He reports that, in the condensation of allyl chloride with isobutane in the presence of aluminum chloride as catalyst, it is possible to obtain from 35-40 per cent yield of a compound, 3,4-dimethyl-1-chloropentane, and with this is formed a dichloro compound, 4,4-dimethyl-1,2-dichloropentane. This is a new type of reaction for saturated hydrocarbons. Schmerling also discusses the mechanism of the alkylation of paraffins in which unexpected reactions occur. It is known, for example, that the reaction of ethylene with isobutane yields chiefly 2,3-dimethylbutane as well as minor products. Schmerling postulates that the first step in the reaction is the addition of hydrogen chloride to a mixture of isobutane and ethylene, resulting in the formation of t-butyl chloride and ethane. The t-butyl chloride then reacts with another molecule of ethylene to form an additional product, $(CH_3)_3CCH_2CH_2Cl$. This, in turn, reacts with a molecule of isobutane to yield the principal product, 2,3-dimethylbutane, and another molecule of t-butyl chloride which then again enters into reaction with ethylene repeating the process. The evidence indicating the usefulness and applicability of this mechanism is cited in the original article.

It has also been reported by Schmerling that it is possible to condense alkyl chlorides with olefins in the presence of a catalyst such as aluminum, iron, or bismuth chloride to give a saturated halide in considerable yield. For example, t-butyl chloride reacts with ethylene in the presence of aluminum chloride at a low temperature to produce 1-chloro-3,3-dimethylbutane. Secondary and primary chlorides react less readily.

It has been found by McKinley, Stevens, and Baldwin that a 20 per cent yield of a new isobutylene dimer may be obtained by heating isobutylene at 400° at high pressure. The compound is 1,3,3-trimethylcyclopentane. It is not formed from diisobutylene, and hence this olefin is not an intermediate in the reaction.

The condensation of methylcyclopentane with olefins in the presence of sulfuric acid or of hydrogen fluoride has been investigated by Pines and Ipatieff. They report, for example, that, with the butenes, methylcyclopentane undergoes ring enlargement with formation of alkylcyclohexanes. This is a consequence of a complex reaction which can not be adequately discussed here.

THIOPHENE

Thiophene was originally detected because it gave a color reaction as an impurity in benzene which pure benzene did not give. Only in 1945 was thiophene itself available in large quantities. This was owing to a new process worked out in the laboratories of certain oil companies. Interestingly enough, now that large quantities of thiophene are available, it develops that its physical properties are not exactly those which it was formerly credited with having. Fawcett and Rasmussen of the Socony Vacuum Laboratories have undertaken a careful investigation of these physical properties and now report on their work. Thiophene boils at 84.12° and has a freezing point of —38.30°C. Just as in the early work on the isolation of benzene from coal tar, it was difficult to obtain benzene free from thiophene; in the present work it was not easy to isolate thiophene entirely free from benzene, it being the last impurity to be removed from the final product.

SYNTHETIC POLYMERS

One of the consequences of the war effort was to make available at a low cost compounds hitherto obtainable not at all or at a relatively high price. The use of styrene in manufacturing synthetic rubbers on a huge scale has made this compound a heavy chemical item with an average sales price of 12¢ per pound during 1944. Hence the possibility of utilizing this compound in various syntheses is under study in a number of laboratories. Emerson (Monsanto Chemical Company) has reported on the reaction of styrene oxide with various reagents. The reaction of ammonia and primary or secondary amines yields β-hydroxy-β phenethylamine or its N-alkyl compounds which are of possible use as medicinal agents and in other ways. Alcohols react in a similar manner to yield β-hydroxy-β-phenylethyl alkyl ethers, and organic acids are converted into styrene glycol diesters Styrene chlorohydrin is dehydrated by an acid catalyst to β-chlorostyrene whereas a neutral catalyst and steam convert it into phenylacetaldehyde, a compound of interest in the perfume industry. The intermediate styrene glycol can be converted to β-phenylnaphthalene by known methods. A basic catalyst, such as alumina, converts the chlorohydrin into acetophenone.

Acrylonitrile, a necessary raw material in one variety of synthetic rubber, has been studied further by Bruson and co-workers (Rohm and Haas Company). In the presence of a strong base, chloroform and bromoform condense with acrylonitrile to form the corresponding trihalogenated butyronitriles. These can in turn be converted to amides and acids.

The combination of benzene and ethylene to make ethylbenzene is of interest because the ethylbenzene can then be converted into styrene, an ingredient of synthetic rubber. Mattox has described the use of solid phosphoric acid catalysts which yield as much as 250 lbs. of ethylbenzene per pound of catalyst without reactivation. One may expect that the extensive research on the benzene-ethylene reaction also will be described in further publications from the laboratories during the next few years.

The urgent need for enormous quantities of butadiene for synthetic rubber manufacture led to a study of the various feasible methods for making this compound. In as much as a fermentation process makes available 2,3-butylene glycol on a large scale, it seemed of interest to study the dehydration of this to butadiene. The German synthesis of butadiene used in making their "buna" rubber started with 1,3-butylene glycol derived from acetylene as the raw material. A series of papers originating in the Peoria Regional Laboratory of the Department of Agriculture appeared during 1945, describing the conversion of 2,3-butylene glycol into the diacetate and the thermal decomposition of the latter to butadiene. Operations were finally carried out on a pilot plant scale. Under certain circumstances the process might become commercially important, but butadiene has been obtained chiefly from ethyl alcohol or oil during the past few years.

Reports are now beginning to appear in the journals on the scientific investigations which were directly related to the synthetic rubber program. For example, Kolthoff and Dale (University of Minnesota) have published a report on the mechanism of emulsion polymerization dealing with the polymerization of styrene under the influence of persulfate. The rate of the polymerization remains unaffected in the presence of a transfer agent such as a mercaptan. Price and C. E. Adams of the University of Illinois have also studied the kinetics of the polymerization of styrene. They found that the polymerization in a soap emulsion was completely inhibited by air. Under nitrogen the rate of the reaction was dependent upon the square root of the concentration of a persulfate catalyst. In the presence of a mercaptan, such as the dodecyl compound, the polymerization stopped at a much earlier stage, the molecular weight of the polymer formed being smaller.

A considerable study has been made by Lewis, Mayo, and Hulse of the United States Rubber Company laboratories on the co-polymerization of acrylonitrile, methyl methacrylate, styrene and vinylidine chloride taking two compounds at a time. They concluded that the interaction of the free radical intermediates with double bonds is specific, that is, that both the ratio and the order of reactivities of a monomer series change as the radical is changed and that there is no simple relation between the relative tendencies of two monomers to enter a co-polymer and their rates of polymerization alone. It is evident that, because of the considerable number of compounds which can be polymerized, the study of co-polymers will continue to be an extensive field of scientific investigation.

The recently developed silicon polymers were in part the result of a long series of investigations on the so-called silanes. There are appearing in the journals now scientific reports on the fundamental chemistry of this series. Krieble and Elliott (General Electric Company) have reported on the preparation and properties of the chloromethylchlorosilanes. Articles on vinyl and allyl chlorosilane by Hurd have appeared from the same research laboratories.

Another important contribution to silicon chemistry was made by Rochow (General Electric Company) who found it possible to synthesize alkyl and aryl silicon halides by the high temperature (360°C) reaction between silicon and the organic halide. A metal catalyst is frequently of value in carrying out the reaction. Hitherto, organic silicon halides have been available only through the expensive process of treating a silicon halide, such as silicon tetrachloride, with a Grignard reagent or other organometallic compound. The yield in the new method at times reaches 70 per cent of dialkyl- or diaryl-dihalosilane.

DDT

The exceptional importance of the new insecticide familiarly known as DDT [which refers to 1,1-di (4-chlorophenyl)-2,2,2-trichloroethane] has resulted in an extensive chemical investigation of its preparation and properties. Haller and co-workers, in a recent report on joint work done under O.S.R.D. sponsorship, have indicated that in the commercial product there is a total of at least 14 compounds; that many were isolated from a sample of commercial material. None of these turned out to be as active an insecticide as DDT itself. The pure compound has a melting point of 108-109°. The major impurity in the commercial product is a compound containing one chlorine in a benzene ring in the ortho instead of the para position. The commercial grade material contains 70 per cent of the major component, that is, the compound for which the product is named. The insecticide became available to the general public in the latter half of 1945.

β-LACTOGLOBULIN

Recently there appeared a very comprehensive report on the properties of the protein, β-lactoglobulin, based on studies by Brand, Saidel, Goldwater, Kassel, and Ryan of Columbia University. The investigation extended to the point where it was possible to postulate a formula for the compound; it has a molecular weight of 42,000 and the empirical formula $C_{1864}H_{3012}N_{468}O_{576}S_{21}$. Nineteen different amino acids are present in this protein molecule. One molecule of the protein contains four tryptophane residues, four of cysteine, seven of arginine, nine of tyrosine, 15 of proline, 21 of threonine, etc. Although it is recognized that there is some uncertainty in these numbers and some uncertainty in the molecular formula, this protein has been as carefully studied and its composition as carefully determined as probably any compound in this group of complex molecules. There is, however, nothing in the work which would indicate the order in which the amino acid linkages occur in the protein chain. The work is particularly significant in connection with nutrition studies, for results based upon the use of this protein may now be clearly related to the use of synthetic amino acids.

CARBOHYDRATE CHEMISTRY

It has been found by Hurd and Bonner (Northwestern University) that tetra-acetyl-α-D-glucosyl chloride reacts with benzene in the presence of aluminum chloride to give several products. Aside from the formation of acetophenone, the principal product isolated after acetylation of the reaction mixture was a tetra-acetyl glucosylbenzene, a type of compound hitherto unknown. 1,1-Diphenylglucitol, a compound containing two benzene nuclei, was also formed. This new reaction opens many possibilities for the preparation of sugar derivatives containing an aromatic linkage or group. Similar reactions occur with toluene and naphthalene.

In an extension of the condensation of sugar derivatives with benzene, it was found also that sugar acetates, such as glucose pentaacetate, condense with benzene to yield the corresponding glucopyranosylbenzene. The optimum conditions for the reaction require ten moles of catalyst per mole of sugar. In as much as the carbohydrate acetates are more readily available than the corresponding acetylglycosyl chlorides, it is possible that this reaction will be more important than the other. The reaction always led to the formation of a certain amount of 1,1-diphenyl-1-desoxy-d-glucitol in addition to the compound containing only one benzene ring. The structures of these arylcarbohydrates were confirmed by another interesting new synthesis involving the Grignard reagent and tetraacetylglucosyl chloride. Previous workers have failed to secure the desired products in carrying out this reaction because insufficient Grignard reagent was employed to react with all the acetyl groups and the halogen.

Wolfrom and co-workers (Ohio State University) have devised a new method for separating carbohydrate acetates using a chromatographic procedure. An examination of the constituents of cane juice and of blackstrap molasses has shown, after the sugar was removed by fermentation, that one of the principal components is inositol. Along with this there was isolated a small amount of D-mannitol from the cane molasses, but this was not found in normal cane juice. D-glucose was also isolated from cane molasses.

The new chromatographic method developed by Wolfrom for separation of sugars promises to be of general application. An example of the adsorbent used is a Florida clay sold under the name of Florex XXX. It is possible to separate a mixture containing equal amounts of sorbitol and D-glucose almost completely, recovering almost 100 per cent of the added sugar; 99.7 per cent of the sorbitol and 2 per cent D-mannitol were separated so that two zones were shown. This procedure will be an excellent aid in the separation of sugars, which has proved one of the most difficult types of laboratory operations. As a further application of the method, it was shown that lemon juice could be chromatographed until the ascorbic acid content concentrated into a narrow zone.

THIOURACIL DERIVATIVES

One of the most interesting recent developments in synthetic organic medicinals is the discovery that certain types of compounds are effective in reducing thyroid activity and can be used in treatment of patients whose thyroid gland is over active. These compounds are useful either in preparation for the usual operational treatment or as a substitute therefor.

The most effective compounds are thiouracil and 6-methylthiouracil. There has appeared a paper by Anderson, Halverstadt, Miller, and Roblin (American Cyanamid Company) indicating that the n-propyl, i-propyl, and benzylthiouracils are approximately ten times as active as thiouracil itself, and from preliminary clinical trial the n-propyl compound is apparently better than the less active drugs from the standpoint of freedom from side reactions. Further interesting developments in this field may be expected.

PINEAPPLE OIL

The composition of the volatile oil of pineapple has been studied by Haagen-Smit, Kirchner, Deasy and Prater of the California Institute of Technology. They have found that the volatile oil content of the summer fruit is much greater than that of the fruit collected in the winter. The chief components in the oil are ethyl acetate and ethyl alcohol, and then, in smaller amounts, acetaldehyde, ethyl isovalerate, ethyl acrylate, and ethyl n-caproate. In addition to these relatively low-boiling fractions, a high-boiling fraction contains sulfur. The small percentage of this sulfur-containing compound is indicated by the fact that only 0.25 g of sulfur was found in about 1,000 kilograms of the winter fruit pulp. It was shown by synthesis that the sulfur compound was an ester, methyl β-methylthiolpropionate. This is, of course, closely related to cysteine, and it is possible that it is obtained in the plant from this amino acid by loss of an amino group followed by methylation.

CHEMISTRY OF PENICILLIN

Late in 1945, there appeared simultaneously in *Nature* and in *Science* a brief summary of the extensive work on the chemistry of penicillin which has been carried out in secret during the war period. In Great Britain some 16 laboratories and university departments worked on the chemistry of penicillin, and in the United States a total of 22 laboratories participated in the research program. Details of the results obtained must await publication of a monograph sometime later, but a brief outline can be given here.

It was found that several antibiotics of the penicillin class could be isolated from various mold metabolic solutions. These all have the empirical formula, $C_9H_{11}N_2O_4S \cdot R$. The compound known in this country as penicillin F and in Great Britain as penicillin I has as its value for R, the group Δ^2-pentenyl, $-CH_2CH = CHCH_2CH_3$. Most commercial penicillin consists chiefly of penicillin G which is known in Great Britain as penicillin II; here R is benzyl. In the commercial production of penicillin a certain amount of penicillin X has also been isolated; for this, R is *p*-hydroxybenzyl.

The penicillins are rather strong mono-basic acids. Electrometric titration does not show the presence of a basic group although this does appear in acetic acid solutions. Hydrolysis of the penicillins with dilute mineral acids leads to the liberation of one molecule of carbon dioxide, an amino acid which has been named penicillamine, and various other products. Penicillamine turns out to be the dextro β,β-dimethylcysteine, a compound which was not previously known. Further hydrolysis of penicillin G yields phenaceturic acid, phenylacetamide, and an aldehyde, $C_{10}H_{11}NO_2$.

Penicillin reacts readily with water, methanol and amines, particularly benzylamine. The reaction products, which are inactive against bacteria, are all penicilloic acid derivatives, and penicilloic acid appears to be a thiazolidine. One reaction of particular interest in determining the possible structure of penicillin is its behavior toward Raney nickel in aqueous solution. This reagent removes sulfur to give desthio-penicillin together with phenacetyl-alanyl-valine. The alanine residue in this derivative has the natural *l*- configuration and valine has the *d*- configuration. Various ideas regarding the structure of penicillin have been advanced, but these can not be discussed in detail, and full information is not available concerning them until the comprehensive monograph which has been promised appears. Suffice it to say that complete agreement on the structure has not yet been achieved, and no synthesis of penicillin or an analog has been reported.

STREPTOMYCIN

Intensive scientific activity in the field of antibiotics has led to the discovery by Waksman of a new compound of great promise which is known as streptomycin. Recently a group of investigators in the Merck Laboratories has been able to isolate the compound in a pure state as a crystalline double salt of calcium chloride having the formula $(C_{21}H_{37}N_7O_{12} \cdot 3HCl)_2 . CaCl_2$ which indicates that streptomycin itself is $C_{21}H_{37}N_7O_{12}$. The high nitrogen and oxygen content are noteworthy features of the formula.

SYNTHESIS OF QUININE AND QUINIDINE

Although the synthesis of quinine was announced in 1944 (THE AMERICAN YEAR BOOK), full details of the work were not made available until 1945. In as much as *d*-quinotoxine, a compound which can be derived from quinine, had earlier been reconverted into quinine by Rabe, the synthetic work of Woodward and Doering had the synthesis of *d*-quinotoxine as its aim. In later work by Woodward, Wendler and Brutschy (Harvard University), a procedure for the quantitative oxidation of quinine to quininone was developed; upon reduction quininone was converted into a mixture of quinidine and quinine in which the former predominates. This two-step conversion of quinine to quinidine was of considerable importance because quinidine, one of the minor cinchona alkaloids which accompanies quinine, became very scarce during the war. Quinidine is considerably more effective than the other cinchona alkaloids in the treatment of auricular fibrillation and hence has a relatively small but important usefulness in medical practice. In as much as quininone can be prepared from *d*-quinotoxine, this later work completes the total synthesis of quinidine. It seems probable that other cinchona alkaloids could be made by the methods employed for quinine and quinidine.

COLOR AND CONSTITUTION OF DYES

Colored organic compounds, particularly dyestuffs, have a variety of uses other than imparting hues to textiles. Brooker and co-workers (Kodak Research Laboratories) have published several new contributions in their series on the study of dyes of value in photography. Of particular interest is the correlation of molecular structure and color for an extensive series of dyes containing some 25 different heterocyclic nuclei. Variation in the absorption band is closely related to the basicity of the heterocyclic nucleus. Many carbocyanine and pyrrolocyanine dyes were described for the first time. Pyrrole nuclei have hitherto not been utilized in this type of dye.

ELECTROCHEMISTRY

By Colin G. Fink
Professor, Columbia University

ELECTROTHERMICS

J. W. Gartland of the National Carbon Company reported on a new high temperature carbon tube furnace. The tube attains a temperature of 3000°C and it can be held at this high temperature within ±20°C. The capacity of the furnace is about one pound. Except in the electric arc, temperatures of 3000° are usually difficult to obtain. There are only three substances with melting points above 3000°C.

At Sault Ste Marie a large calcium plant was built during the war. The metal is produced by the electrolysis of fused calcium chloride. It is a very efficient scavenger for both ferrous and non-ferrous metals.

Fink and Wroughton investigated the synthesis of cyanogen and of hydrocyanic acid at elevated temperatures. Upon passing hydrogen and nitrogen over heated carbon (2000°C), hydrocyanic acid is formed in a single step and at ordinary pressures. This direct synthesis would seem to have considerable advantage in simplicity of process alone. The rate of formation of hydrocyanic acid is directly proportional to the nitrogen concentration and inversely proportional to the square root of the hydrogen concentration.

A paper of special interest was presented by D. B. Alnutt and Chas. L. Sheer of the Foote Mineral Company. It covered the manufacture, fabrication, and properties of zirconium metal. The pure metal is silver-white, very ductile, and highly resistant to corrosion. It has found numerous uses such as spinnerets for rayon; vacuum tube elements, notably grids, to prevent the emission of secondary electrons through the grids; etc. Zirconium metal powder is a very efficient reducing agent in the preparation of metallic caesium for the "electric eye" or photo tube. The powder is also used in ammunition primers and in smokeless flashlight mixtures.

High frequency induction heating has found ever wider application in industry. An outstanding accomplishment is the fixation of atmospheric nitrogen at efficiencies far in excess of all previously recorded figures.

The setting of plastic adhesives in the manufacture of plywood by high frequency heat has an important bearing on the development of wooden air craft. It appears certain that wooden air-plane parts will compete with corresponding parts made of magnesium or aluminum. Magnesium is addicted to stress corrosion and aluminum to fatigue under constant vibration caused by the air-plane engines.

Dielectric heating is not applicable to materials with resistivities less than 1000 ohm-cm. When power above 20 kilowatts is involved, frequencies above 20 megacycles are impractical.

ELECTROPLATING

The electrodeposition of indium on lead and the consequent production of lead-indium diffusion alloys, highly resistant to corrosion by lubrication oil, was carried out on a very extensive scale during the war. William S. Murray advocated the use of the sulfamate indium bath in preference to the sulfate bath most generally used.

The indium-tin alloys were investigated at Columbia and the complete fusion diagram submitted.

T. G. Coyle reported at length on electroplated chromium containing oil retaining surface pores. Such porous chromium deposits were extensively used during the year on steel rolls, piston rings, diesel engine cylinder liners, and aircraft cylinders.

Millions of machine parts were chromium plated to resist wear.

Renewed interest throughout the country was displayed in the electrolytic application of metal surfaces to plastic articles. The finished articles compete seriously with plated brass and plated diecast articles. An outstanding feature of the electroplated plastic articles is their lightness.

The year brought forth numerous reports on anodizing and on electrolytic polishing. Chromic acid continues to be one of the best reagents for treating the surfaces of aluminum, magnesium, and stainless steel in order to retard corrosion.

ZINC

Details of the electrolytic production of pure zinc by electrowinning at Corpus Christi, Tex., were published by George H. Cunningham and Allen C. Jephson. Owing to the relative scarcity of copper, die cast metal has been substituted for brass. In order to produce die castings efficiently pure zinc is necessary. About one third of the zinc metal produced today is electrolytic.

ELECTRONICS

Howard M. Elsey of the Westinghouse Corporation solved the problem of the short life of commutator brushes at high altitudes (air planes). He found that treating the carbon brushes with lead iodide developed a characteristic dark, satiny film that resulted in a normal life of the brushes.

Samuel Ruben developed a new rectifier for alternating current in which the electrically active surfaces are magnesium sulfide and cuprous sulfide. During electro-forming magnesium, metal disc surfaces develop a film of magnesium sulfide and the adjacent cupric sulfide is reduced to cuprous sulfide. The operation of the rectifier is purely electronic.

ELECTROPHORESIS

Morris Feinleib of the author's laboratory reported on the ease with which vinyl plastics can be deposited on metal surfaces. The films are remarkably clear, tough, and free from pinholes. The films have good insulating properties and protect metals, covered with these films, against corrosion.

PERIODICAL PUBLICATIONS

American Journal of Physics
57 E. 55th St., New York City.
Chemical and Engineering News
1155 16th St., N.W., Washington, D. C.
Chemical Engineering Catalogue
330 West 42nd Street, New York City.
Chemical Industries
522 Fifth Ave., New York City.
Chemical and Metallurgical Engineering
330 West 42nd Street, New York City.
Chemical Reviews
Mount Royal and Guilford Aves., Baltimore, Md.
Chemist, The
60 E. 42nd St., New York City.
Industrial and Engineering Chemistry
60 E. 42nd Street, New York City.
Journal of the Acoustical Society
57 E. 55th St., New York City.
Journal of the American Chemical Society
Easton, Pa.
Journal of Applied Physics
57 E. 55th St., New York City.
Journal of Chemical Education
500 Fifth Ave., New York City.
Journal of Chemical Physics
57 E. 55th St., New York City.
Journal of Mathematics and Physics
Massachusetts Institute of Technology, Cambridge, Mass.
Journal of the Optical Society
57 E. 55th St., New York City.

Journal of Organic Chemistry
Mount Royal and Guilford Aves.,
Baltimore, Md.

Journal of Physical Chemistry
Mount Royal and Guilford Aves.,
Baltimore, Md.

Physical Review
57 E. 55th St., New York City.

Review of Modern Physics
57 E. 55th St., New York City.

Review of Scientific Instruments
57 E. 55th St., New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Association of Cereal Chemists, 4049 Pennsylvania Ave., Kansas City, Mo.

American Association of Physics Teachers, Northwestern University, Evanston, Ill.

American Association of Textile Chemists and Colorists, 440 Fourth Ave., New York City.

American Ceramic Society, 2525 N. High St., Columbus, O.

American Chemical Society, Inc., 1155 16th St., N.W., Washington, D. C.

American Electrochemical Society, Broadway and 117th St., New York City.

American Institute of Chemical Engineers, 50 E. 41st St., New York City.

American Institute of Physics, 57 E. 55th St., New York City.

American Leather Chemists Association, 143 W. 20th Street, New York City.

American Microscopical Society, Kansas State College, Manhattan, Kan.

American Oil Chemists Society, 509 Poydras St., New Orleans, La.

American Physical Society, Columbia University, New York City.

American Society of Biological Chemists, U. S. Bureau of Agricultural Chemistry and Engineering, Washington, D. C.

American Society of Brewing Chemists, Inc., 64 East Lake St., Chicago.

Association of Official Agricultural Chemists, Box 540 Benjamin Franklin Station, Washington, D. C.

Copper and Brass Research Assn., 420 Lexington Ave., New York City.

National Research Council, 2101 Constitution Ave., Washington, D. C.

Society of Chemical Industry, 305 Washington St., Brooklyn, New York City.

Synthetic Organic Chemical Manufacturers Assn., 6 E. 45th St., New York City.

DIVISION XXII

BIOLOGY

ORGANIC EVOLUTION AND GENETICS

By Myron Gordon
Research Associate in Genetics, New York Zoological Society

TEMPO AND MODE IN EVOLUTION

Several years ago the National Research Council, in the Division of Geology and Geography in cooperation with the Division of Biology and Agriculture, formed a new committee for the purpose of discussing "The Common Problems of Genetics, Paleontology, and Systematics." The chairman of that committee was Dr. George Gaylord Simpson, Curator of Fossil Mammals at the American Museum of Natural History. Late in 1944 Dr. Simpson's book *Tempo and Mode in Evolution* was published by the Columbia University Press. Here may be found the answers to those who wondered what there was in common, particularly between paleontology and genetics, to warrant the formation of a bipartisan committee and what would geneticists and paleontologists discuss at their joint meetings. None was more aware of the difficulties of reconciling the views of these branches of biology than Dr. Simpson. He put it this way in his introduction:

"Earlier work in genetics was devoted mainly to studying the transmission of inherited characters, cryptogenetics. Earlier work in paleontology was devoted largely to the determination of the forms and sequence of fossil animals and to their classification. There is hardly any point of contact between these subjects, and it is not surprising that workers in the two fields viewed each other with distrust and sometimes with the scorn of ignorance. Now this basic work in both subjects, although far from completed in either, is so well advanced that what remains must in great part follow charted paths. Both geneticists and paleontologists are turning to new fields. In genetics the vigorous and trail blazing work is now more likely to be in the field of phenogenetics—not how heredity occurs, but how hereditary characters achieve their material expression in the life cycle of an animal or plant and in the third major division of modern genetics, that of population genetics.

"Like the geneticist, the paleontologist is learning to think in terms of populations rather than of individuals and is beginning to work on the meaning of changes in populations. Thus, from very different starting points, geneticists and paleontologists have come to the study of problems that are not only related but also sometimes identical."

Dr. Simpson analyzes his material under two headings: *tempo* which has to do with evolutionary rates under natural conditions, the measurement and interpretation of rates, their acceleration and deceleration, the conditions of exceptionally slow or rapid evolutions, and phenomena suggestive of inertia and momentum; and *mode* which deals with the way populations became genetically and morphologically differentiated, to see how they passed from one way of living to another or failed to do so, to examine the figurative outline of the stream of life and the circumstances surrounding each characteristic element in that pattern.

In his discussion of the Organism and Environment, Dr. Simpson takes up the nature of adaptation, real and prospective functions in which the realization of functions by overlap of prospective functions of organism and environment are illustrated by informative diagrams, preadaptation and postadaptation, adaptive zones, and the application of so called adaptive grid. The book ends with a chapter on the specific modes of evolution which Dr. Simpson classifies as "speciation" at the lowermost level, "phyletic evolution which involves the sustained, directional shift of average characters of populations," and "quantum evolution." The last term is meant to apply to the relatively rapid shift of a biotic population in disequilibrium to an equilibrium distinctly unlike an ancestral condition. Such a sequence can occur on a relatively small scale in any sort of population and in any part of the complex evolutionary process. It may be involved in either speciation or phyletic evolution, and it has been mentioned that certain patterns within those modes intergrade with quantum evolution.

SEXUAL ISOLATION IN EVOLUTION

"If mature and sexually active females and males of two or more animal species inhabit the same portion of space they do not mate at random. For various reasons females of each species mate with and are inseminated by males of their own species more often than by males of other species. Causes which make mating and insemination selective rather than random may be grouped under the categories of sexual and mechanical isolation. Sexual or psychological isolation includes various differences in behavior, in smells, and in adornments which make females and males of different species less likely to find each other, and, if found, less attractive and therefore less willing to accept the courtship and invitation to mating. Mechanical isolation refers to differences in the structure or function of the genitalia and other body parts which play a role in the act of copulation and which handicap normal intromission and sperm delivery. The distinction between sexual and mechanical isolation is to a certain extent arbitrary, and it is probable that, with more study, situations will be found which will be intermediate or will require a different classification".

With this introduction Dr. Th. Dobzhansky of Columbia University with a number of coworkers, Dr. Ernst Mayr of the American Museum of Natural History, and George Streisinger of the Biological Laboratory at Cold Spring Harbor, Long Island, New York, began a series of experiments designed to understand a hitherto poorly understood factor in evolutionary problems. In a series of four papers under the common title: "Experiments on Sexual Isolation" which were published in the *Proceedings* of the National Academy of Sciences (30:238-244, 1944; 30:340-345, 1944; 30:335-339, 1944; 31:75-82, 1945), these authors found that in some species widely separated strains of the same species, some show selective and others show random choices. When northern (Mexican *Drosophila prosaltans*) males are kept with a mixture of northern and southern (Brazilian) females, more of the former than of the latter are inseminated. In a similar experiment the southern males also inseminate more northern than southern females.

A further indication of the trend in the genetic approach to the problems in evolution has been stated by Dr. J. T. Patterson of the University of Texas and Th. Dobzhansky (*Genetics* 30:429-438, 1945) in their introduction to the paper entitled "Incipient Reproductive Isolation between Two Subspecies of Drosophila pallidipennis." The process of transformation of races into species is in general slow. The only approach to its study is through examination of its successive stages represented on our time level in different species and species groups. Nor is the process uniform in all organisms. Even though the essential feature of speciation in sexual cross-fertilizing forms is the development of reproductive isolation between the diverging races, the isolation is attained by different means in different cases. This necessitates careful study of diverse groups of organisms, as well as of different related species with contrasting biologies, modes of life, and distributional relationships. From their special study they found that, while there exists a slight morphological difference between the two subspecies in question and that details of gene arrangement are almost identical and there is a lack of sexual isolation, nevertheless there is hybrid sterility. This suggests to them that the different components of the process of speciation characteristic for the genus Drosophila are largely independent.

GENETICS AND CANCER

In a book issued by the American Cancer Society, edited by Clarence C. Little, Sc.D., the facts on cancer are presented in a form to be read and understood by the average person. The book is divided into three sections—Research, Service, and Education. In the section on Research, Dr. Little explains the part that heredity plays in determining the incidence of cancer. Although his examples are taken from work on inbred mice, his conclusions will interest not only the research worker who is concerned in investigating the origin and nature of cancer, but also the layman who is primarily concerned with his or her individual well-being and health. Dr. Little first presents the basic factors in heredity and transmission, explaining Mendel's experiments, the problem of incomplete dominance, the role of chromosomes and heredity, sex linkage, and finally "Heredity and Cancer in Man."

According to Dr. Little, "The first definite fact is that cancer is not a simple, single entity from a biological or hereditary point of view. There is no great general hereditary tendency that protects against it." He reports that man is unlikely to be subject to the close imbreeding to which cancerous strains of mice are restricted. "This means," Dr. Little continues, "that for the present at least and until further knowledge is obtained the individual whose parents died of cancer or in whose family the disease is frequent, should be on the alert, cautious and intelligent in detecting and reporting any sign or symptom of cancer in his body. . . . Nothing is more cruel than the haunting fear that members of a 'cancer family' are allowed to experience. Future experimentation may show this fear is justifiable, but present knowledge does *not.*"

Dr. Little suggests more fundamental research of cancer in animals. Without exact knowledge of the biological nature of the material being used we shall not be able to evaluate the relative importance of heredity and other factors in the production of cancer. *Cancer, A Study for Layman* is published by the American Cancer Society.

GENETICS FOR THE PHYSICIAN

Dr. Julius Bauer, professor of Clinical Medicine in the College of Medical Evangelists, Los Angeles and formerly professor of Medicine in the University of Vienna, has prepared the second edition of his book *Constitution and Disease—Applied Constitutional Pathology* which was published by Grune and Stratton in 1945.

Dr. Bauer has felt that up to now too little attention has been given to the constitutional or genetic standpoint in both general and specialized practice of medicine, particularly in clinical endocrinology. He claims that certain clinical syndromes have been reported and interpreted on the basis of endocrinological considerations only. To discount or neglect the constitutional aspects of such syndromes may lead the diagnostician or the research worker astray from basic paths with respect to both etiologic discrimination and therapeutic effectiveness.

The book was written by a medical doctor for the doctor practicing medicine. It contains a storehouse of information that the geneticist will need and ought to know if his science is to have its practical application to human welfare. It however, is not a book aimed for reading by the layman.

In the introductory chapter Dr. Bauer describes the science and the art of medicine, the limits of normality, and the general principles of Mendelian inheritance. He defines "constitution" as the sum total of an individual's characteristics as they are potentially determined at the moment of fertilization. Cattell is credited with the statement: "Heredity determines what one can do, environment determines what one does do." Dr. Bauer discusses the complexity of the hereditary-environmental problems, so exceedingly important in human biology because of the sociological factors which are superimposed upon them. His viewpoint on the way genes work is in keeping with modern genetic thinking. For instance, he points out that different genes may produce the same end result while other genes may produce a series of what may appear to be totally unrelated effects. He discusses a large number of organs and shows their constitutional backgrounds. He stresses what he calls the "Integrative Systems of Individual Constitution," the endocrine system which is the mediator between constitution and the effector system.

He treats the problem of classification of normal and abnormal constitutions, and then discusses some of the major diseases with chiefly constitutional etiology. Included in the latter category are metabolic diseases, hypertension, hemopoietic types, peptic ulcers, cancer. For cancer he cites many instances of family histories where not only the kind but the site of the disease has been traced in a number of generations. Dr. Bauer ends his valuable book with a discussion of the principles of treatment, nonspecific therapy, pitfalls and errors. The bibliography contains over 400 references many of them of recent authors, but the important suggestions of Dr. Th. Dobzhansky should be added.

Dr. L. C. Dunn and S. Gluecksohn-Schoenheimer of Columbia University writing in the *Proceedings* of the National Academy of Science (31:82-84, 1945) under the title of "Dominance Modification and Physiological Effects of Genes" stated that in order to derive some meaning from such observations for R. A. Fisher's general theory of the origin of dominance in evolution, it would be necessary to specify whether modifiers of Sd (absence or shortening of the tail, absence or abnormality of one or both kidneys, absence of external anus and genital aperture and abnormalities of other parts of the urogenital system) would be selected because of their effect on tail length or because of their effect on urogenital development. In view of the evident relation between the urogenital expression and viability, there can be little doubt that modifiers which tend to make the urogenital effect of Sd recessive would be selected, but these same genetic constitutions may increase the dominance of Sd in respect to tail length. It can be concluded, they say, that the evolutionary significance of factors affecting dominance can be properly assessed only when their physiological effects are known.

Dr. M. M. Rhoades writing in the same journal (*P.N.A.S.* 31:91-95, 1945) under the title of "On the Genetic Control of Mutability in Maize" pointed out that the gene Dt in maize is of more than usual interest because of its striking ability to increase the mutability of the recessive allele which is normally highly stable. Dr. Rhoades indicated that the gene Dt is located at the end of the short arm of chromosome 9. The regional distribution of crossing-over in the short arm of this chrômosome and the location of the known mutant genes in chromosome 9 were evaluated, and by an examination of the published data on the genetic control of the mutation rate of the recessive allele, Dr. Rhoades concluded that the phenomenon could not be accounted for in terms of factor interaction, epistasis, or threshold values which Dr. Richard Goldschmidt of the University of California had suggested.

CYTOPLASMIC INHERITANCE

Experiments to test the probability of cytoplasmic inheritance have been carried out by three workers of the Washington University School of Medicine and Washington University: S. Spiegelman, Carl C. Lindegren and Gertrude Lindegren. They reported their work in the *Proceedings* of the National Academy of Sciences (31: 95-102, 1945), pointing out first that the production of galactozymase by *Saccharomyes cerevisiae* revealed that in certain diploid strains its appearance in the cell was effected by a direct interaction between the cytoplasm and galactose. It was also possible to adapt the normally diploid *Schizosaccharomyces pombe* which had previously been reported as unadaptable to galactose fermentation by inoculating a galactose medium with a heavy suspension of haploid spores.

The experiments with adaptation to both galactose and melibiose led to the conclusion that the gene initiates the synthesis of the adaptive enzyme providing the specific substrate is present. This is a definite reaction between the cytoplasm and the substrate.

In new experiments reported under the title of "Maintenance and Increase of a Genetic Character by a Substrate-Cytoplasmic Interaction in the Absence of the Specific Gene," the authors summarize their results as follows: The effect of Melibiose on the inheritance of the ability to ferment this sugar has been studied. In the absence of melibiose, a 1:1 ratio of fermentors to non-fermentors is exhibited by the four haploid segregants from an ascus. This is typical of a heterozygous diploid and agrees with the known genetic background of the hybrid employed. When the segregation occurs in the presence of melibiose, all four segregants can ferment the sugar. All four haploids and the clones derived from them can maintain this ability indefinitely if kept in contact with the substrate. When, however, the melibiose is removed, only two out of the four can readapt to its fermentation. These data are explained in terms of adaptive enzymes and their stabilization by their specific substrates in the absence of the gene; transfer of the character from one cell generation to the next is apparently effected by the enzyme molecules contained in the cytoplasm.

GENETICISTS IN THE FIELD

The days of genetic work in indoor laboratories with innumerable milk-bottle cultures of fruit flies are by no means over, but many geneticists working in the newer branches of population genetics and evolutionary problems with genetic techniques are flocking to the fields, to the native habitats of the species they study. One of the most ambitious of these projects is the one set up in the University of Texas and directed by Dr. J. T. Patterson of the Department of Zoology. In a University of Texas publication (No. 4445, Dec. 1, 1944), the fourth part of "Studies in the Genetics of Drosophila" was subtitled: Papers dealing with the taxonomy, nutrition, cytology and interspecific hybridization in Drosophila. In the first of the new series of papers, The Drosophilidae of Mexico, J. T. Patterson and G. B. Mainland described 12 genera and over 100 species. These descriptions are aided by a series of color plates and distributional maps. The saltans group, they conclude, extends from northern Mexico to Paraguay and it is undoubtedly of neotropical origin. Apparently the macroptera group is likewise of neotropical origin since certain species are rather abundant in Mexico and four species occur there while only one of these, macroptera, penetrates the nearctic realm. For the same reasons, the rubrifrons group is neotropical. In as much as Drosophila species have been taken at high altitudes by airplane, nearctic members of this genus may well have been dispersed by air currents into temperate regions of Mexico, and there have become established at any time subsequent to the development of ecological conditions similar to those now existent.

In a short paper J. T. Patterson describes a New Member of the Virilis Group. In the third paper in the volume, R. P. Wagner writes on The Nutrition of Drosophila mulleri and D. aldrichi: Growth of the larvae on a cactus extract and the microorganisms found in cactus. The fourth paper is written by Mary Warters on the Chromosomal aberrations in wild populations of Drosophila. The fifth paper is by Linda T. Wharton on Interspecific Hybridization in the Repleta Group. The sixth by J. T. Patterson and A. B. Griffen is on the Relationship of Drosophila montana and D. lacicola to other members of the vivilis group, and the seventh, A Genetic Mechanism underlying Species Isolation.

POLITICO-GENETICS

In his preface to *Dice of Destiny, An Introduction to Human Heredity and Racial Variation* (Columbus, O., Long's College Book Co., 1945) the author, Dr. David C. Rife, associate professor of Zoology in the Ohio State University, states that no two of us are alike. We differ in size, features, pigmentation, intelligence, vigor, longevity, ability, personality, and a host of other traits. Individual differences depend upon either heredity, or environment, or upon the interaction of the two. Environmental variations are confined to the individual, as they are not transmitted to future generations while hereditary variations are not affected by ordinary environmental conditions. The hereditary factors, or genes, are present at birth and the individual can not alter his allotment of them.

Dr. Rife first explains the principles of heredity as they apply to individual and racial variations. He does not catalogue abnormalities; rather he stresses the normal, non-pathological differences which are quite common, and which are responsible for genetic differences between racial groups. In the book he is not concerned with medical genetics, referring the reader to texts on this subject.

It is refreshing to have a book on human genetics which is not at the same time a rogue's gallery of all the human abnormalities. Heretofore it has been difficult to suggest a text dealing with genetics in relation to man without subjecting the reader to a parade of monstrosities. True, these "bad" genes are as much our heritage as are the "good" genes, but it is likely that the subject of genetics may receive a far better response if, as Dr. Rife has done, the ordinary, normal, common factors are discussed and it is explained how they interact with the environment of the individual who bears them.

Dr. C. L. Hubbs of the University of California, in reviewing *Dice of Destiny,* writing in the *American Naturalist* (79:275-276, 1945) said: "After being surfeited with rebuttals of the Nazi philosophy of racial superiority, all based either on the almost equally unscientific idea that human races do not differ at all in mental capacities or on the still more absurd notion that races do not exist, we find real relief in the appearance of a scientifically sound treatise on human race problems. The human biologist shows himself able to avoid the pseudo- science that seems to pervade in part the thought of many physical anthropologists as well as sociologists."

On the same topic, Dr. Th. Dobzhansky, writing in *Science* (102:234-236, 1945), expresses concern that Dr. Rife, more than some but less than other writers on politico-genetics, is inclined to regard heredity as being rigidly determinant. Dr. Dobzhansky feels that heredity can hardly be taken to stand for "The Dice of Destiny" if its realization depends largely upon the environment which is in part controlled by human will. He asserts that the frequently advanced argument that, because psychic traits in animals are rather rigidly determined by heredity, they are so determined in man does not necessary follow. He believes that the evolutionary pattern of the human species is so different from those of the higher animals (not to speak of the lower ones) that judgment by analogy with respect to the psychic traits has little value. He adds: "It may be that the non-pathological hereditary differences in behavior found among men are merely the uneroded remnants of genotypic specializations that were moulded by natural selection to fit the conditions of ages long past. Genotypes now emerging will perhaps redispose every individual to respond to every challenge that his environment may offer as a social rather than a solitary being."

There is no doubt that with the publication of Dr. Rife's book, the discredited theories of overenthusiastic improvers of mankind will at last be matched with honest, sincere statements based upon the results of modern research into genetics, sociology, and the general biology of mankind. It is well to keep in mind that our knowledge on these subjects is still far from satisfactory. No statement may be taken as the last word at the present time.

EVOLUTION AND PLANT GEOGRAPHY

Part four of Dr. Stanley A. Cain's book, *Foundations of Plant Geography* (Harper, 1944) is entitled Evolution and Plant Geography. In previous parts he had described the scope of plant geography and called it a borderline science because information had to be abstracted from the fields of systematics, evolution, speciation, cytology, genetics, pollen analysis, paleoecology, and aerography, the science of areas. He gives special attention to paleoecology in which subject Dr. Cain (University of Tennessee) is a specialist, and this subject merges with that of aerography which deals with topics of dispersal and migration, centers of origins, discontinuous distributions of organisms, the presence of vicarious forms in special areas. He develops the theory of differentiation in relation to the science of area, the most important advocate for which had been Dr. J. C. Willis and the theory of "age and area." This theory of evolution relegates natural selection to a subsidiary position, acting primarily with respect to adaptation, and accounts for the development of a group through a series of relatively large morphological mutations progressing downward from the family to species. As a consequence of this hypothesis, "taxonomic characters" are rarely concerned with adaptation or natural selection.

In part four, Dr. Cain reviews the principles concerning evolution, speciation and plant geography, the nature of species, isolation causes of species stability, and the rate of evolution and speciation. The fifth section, the last, is concerned with polyploidy, an exceedingly important topic in the mechanisms of species changes, particularly in plants. Dr. Cain made the following statements: 1. Evolution results from the action of one or more of several processes—mutation and hybridization, selection and isolation; 2. Speciation is understood as an ultimate step in evolution with results in discontinuity between populations and which, strictly speaking, depends upon reproductive isolation that results from intrinsic factors; 3. Species are not genetically homogeneous populations and consequently they are composed of individuals which vary in morphological and physiological characteristics within definable limits. Species consist of a number of biotypes, sometimes very large, that are usually not uniformly dispersed throughout the species population but are more or less concentrated in local populations, ecotypes, and geographical races; (Points 4 and 5 are concerned with the species concepts and taxonomic systems); 6. Geographical isolation promotes speciation but it does not of necessity result in speciation; 7. The rate of evolution depends upon the independent and conjunctive operation of a number of factors such as mutation rate; the richness of the population in allelemorphic genes; the replication of chromosomes as in euploidy and aneuploidy; population size; the size availability, and variability of ecological niches; the vicissitudes of environmental change and concomitant migrations, and the nature of selective pressure. There are suppositions of evolutionary cycles or mutation spates, but there are no unqualified evidences of strikingly different mutation rates or of the fact that age of a phylogenetic stock results in evolutionary senility.

A GENETIC TEXTBOOK

Dr. Edgar Altenburg of the Rice Institute of Houston, Tex. has prepared a revised edition of the textbook, *Genetics* (Holt, 1945). Dr. Altenburg has endeavored to place emphasis on the advances in modern genetics, stressing the principles rather than the details of the subject. He begins with a discussion of the physical basis of heredity and quite properly stresses the importance of the behavior of the chromosomes. He then takes up the subject of "heredity and environment" with a discussion of twins reared apart. Mendelian principles are explained in terms of independent assortment. The following subjects are then taken up: Multiple Factors, The Determination of Sex, Inbreeding and Outbreeding, The Genetic Interpretation of Sex, Selection, Lineage, Crossing Over and Chromosome Maps, Crossing Over and Meiosis, Multiple Alleles, Abnormal Chromosomal Rearrangements, Cytogenetic Maps, Genic Balance and Chromosome Number, Mutation, The Artificial Production of Mutations, Balanced Lethals and Chromosome Complexes, Heredity and Development, and The Genetic Basis of Evolution. In this, the last chapter, Dr. Altenburg discusses some of the alternate theories of evolution and then shows that the one dealing with adaptive evolution which comes about through mutations and natural selection is the most acceptable. The author explains the way in which the genes spread independently of natural selection; this he regards as *drift*. He discusses very briefly equilibrium, and mutation pressure in the evolutionary process as well as the importance of geographical and ecological isolation. The importance of interspecific sterility, the changes in chromosome number in evolution are described.

THE TIME FACTOR

While geneticists are mostly concerned with the behavior of particular organisms, they are beginning to appreciate more the history of the special environments in which the organisms live. Ecological notes may be gathered as organisms are collected in their native habitats, but not only present day conditions must be known but the past history of the area must be estimated for a more accurate picture of the organism's evolutionary development.

The recent book *Rocks and Rivers* is not a source book of geological information but it presents a clear and continuous picture of the manner in which the land contours change, how large areas become obliterated in time, and how time is measured by geologists. The book was written by Dr. Ellis W. Shuler of the Southern Methodist University, Dallas, Tex. and published by the Jaques Cattell Press of Lancaster, Penn. In it the earth surface is studied as if it were an organism itself. The story of its origin, development, rapid growth, gradual destruction and obliteration at some point is told in non-technical language. This is one of the "Humanizing Science Series." Dr. Shuler in a well illustrated account, tells the nature and history of the landscape: how the crust is carved, the wastes removed, the nature of soils, the manner in which the lands are sculptured, the nature of springs, caves, and natural bridges. He tells the meaning read in the shore line, the volcanic lands, the boulders and their relation to the ice age, the story of stream piracy, the temporal nature of lakes, waterfalls and the formation of canyons. All these changes take time, and only the geologists and the paleontologists can tell us the meaning of time for evolutionary development.

WATER FOWL EVOLUTION

The method of the application of new techniques and corollary knowledge in the field of systematics in relation to evolution may be seen in the study on "The Family Anatidae" by Captain Jean Delacour, Technical Consultant of the New York Zoological Society and Doctor Ernst Mayr, Curator of Birds at the American Museum of Natural History which was published in *The Wilson Bulletin* (57: 3-55, 1945). In addition to such information as may be obtained by studying the skeleton, appendages, viscera, and feather coverings of their specimens, the authors have reexamined the living birds and their many behavioristic attributes. These features, which are just as much a part of the species as "hard" parts, are grouped under the heading of "Biological Characters" and include such items as the type of pair formation and parental care, the type of courtship and display, the type of nesting habits, the type of food and feeding habits, the question of sterility in some hybrid types, the problems arising from serological tests, the types and behavior of their young, how they stand, how they walk and, of course, how they sound.

One conclusion they reached related to the evolutionary problem is as follows: "The fact that the duck family is so rich in aberrant and primitive genera indicates the great age of this family. However, this is by no means proof that evolution has come to a standstill. Many genera present convincing evidence of active speciation. Incipient speciation is evidenced by the occurrence of about 25 forms which, though we consider them subspecies, are sufficiently distinct to be listed as full species by other recent authors. Nearly completed speciation is evidenced by the occurrence of at least 10 superspecies."

HUMAN ORIGINS

Dr. Fay-Cooper Cole of the University of Chicago, in his presidential address before the American Society of Naturalists on Sept. 14, 1944, entitled "Some Problems of Human Racial Development and Migration" (*American Naturalist* 79:5-13, 1945), said in part that "We accept the idea that all living groups of mankind belong to one and the same species and that the separation into subspecies and races probably goes back toward the end of the Pleistocene. The ways of classifying still lead to some confusion, but I believe the majority will accept the scheme whereby the species is first divided into three main stocks or subspecies—Negroid, Mongoloid and Caucasoid—and these are further subdivided into races, subraces and so on down."

He sees the human species subject to same forces of nature as other species: mutations, isolation, inbreeding, natural and social selection, possible effects of environment and so on. He recalls that archeology shows us that, until the development of agriculture and animal husbandry, mankind was in small hunting and seed gathering groups. Under such conditions variant forms had a much greater chance of becoming established, while natural selection worked more drastically to eliminate those unfit for the conditions under which a group was then living. In illustrating one problem, he mentions the fact that most people think of Africa as the homeland of the Negro, but large and small Negroes are found not only in Africa but in New Guinea on the other side of the world. Traces of this people occur in the present populations or in archeological horizons along the coasts all the way between. It is extremely unlikely that environmental conditions at the peripheries could independently produce the complex of traits by which we define the Negroids. There is much to suggest that, with the possible exception of the Bushman, all the Negro groups are rather recent intruders of Africa. If this is true, we should perhaps look for origins somewhere toward north India.

COTTON EVOLUTION

Dr. R. A. Silow continued his analysis of the evolution of cottons and reported in *The Journal of Genetics* (46:62-77, 1944) from the Empire Cotton Growing Corporation, Trinidad, B. W. I. on "The Genetics of Species Development in the Old World Cottons." In summary his conclusions were as follows: Interspecific genetic differences in Gossypium are only distinguished from intraspecific regional differences by their greater magnitude. Both species and races are in a state of dynamic flux, with genotypes constantly changing, the genes being subject not only to environmental selection but also on the basis of their compatibility with the entire genotypic system. In the origin of physiological isolation there is no indication of Goldschmidt's macroevolution. Although G. arboreum and G. herbaceum may not be held to be distinct species, the same can not be said of G. anomalum, which shows the same kinds of interspecific differences.

The cumulative effects of many gene differences will account for all the taxonomic distinctions in the genus up to the complete sterility level but below that at which chromosome rearrangements become important. G. arboreum races are regrouped and redefined in six geographical races.

Incipient development of sterility between two species provides the evidence that physiological isolation is built up by a gradual process. Among others there is little or no gene interchange in nature, and hybridization leads to complete mutual disintegration of the species' balanced gene systems.

GENETICS AND SEX

Amram Scheinfeld, the author of *You and Heredity* one of the successful popularizers of genetics, has written his second volume on a related topic: *Women and Men* (Harcourt, Brace, 1944). By the use of non-technical language and keenly conceived drawings, Scheinfeld presents the information concerning the differences and similarities of the sexes. While most of his attention has been devoted to the human species, he draws upon the fund of information on sex in the lower forms. His treatment of the determination of sex in man is particularly successful, for he shows how the sex of the individual is determinate at conception by the chance meeting of sperms carrying the X or the Y chromosome with an egg cell carrying an X. He explains that the final outcome depends upon the balance of these sex chromosomes with the other 46 chromosomes. As the human embryo develops, every cell from head to toe differs in the male from that of the female. Beginning with this basic difference, Scheinfeld shows how environmental and sociological factors contribute to further differentiate female from male. Many fields of human biology are explored including the physiological, behavioristic, and psychological factors which separate the world between the sexes.

GRANT TO STUDY GENETICS OF INTELLIGENCE AND EMOTION

On May 7, 1945 the Rockefeller Foundation announced a grant of $282,000 to the Roscoe B. Jackson Memorial Laboratory for studies over a five-year period of genetic factors in intelligence and emotional variation in mammals. According to R. C. Cook, editor of the *Journal of Heredity,* this may mark a turning point in genetic research as it applies to questions of peculiar importance in human society. The research will be directed by Dr. C. C. Little, the authority of the relation of genetics to cancer, who is also one of the most famous dog-breeders in the United States.

ENTOMOLOGY

By Roger B. Friend
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TAXONOMY

In the field of taxonomy, entomologists have been fairly active and productive, even in contributing to our knowledge of groups of insects of no great economic importance. Borrer published a key to the genera of the Libellulidae of the New World, and Daggy described a number of new species of Ephemeroptera from Minnesota. Several papers dealing with the Fulgoridae (Homoptera) appeared, particularly with those species found in southern regions. Caldwell described several species of Issidae from Mexico and gave an account of the neotropical species of the genus Phrictus. Fennah described a number of new species from South America, and published contributions to our knowledge of the fulgoroid species found on the islands of the Greater and Lesser Antilles and in nearby South America.

This author also discussed certain morphological characters of taxonomic importance in this group and other Homoptera. Metcalf recorded a number of species found in British Guiana and described several that are new. Penner discussed the genus Laccocera of this group and described a few new species. Dealing with other Hemiptera, Beamer revised the cicadellid genus Strangania as it occurs in North America; Usinger published a classification of the reduvioid family Enicocephalidae; Tuthill continued his contributions to our knowledge of the Psyllidae of Mexico, McKenzie revised the coccid genus Parlatoria, and Hutchinson published a key to the New England species of the genus Notonecta.

Among the contributions to the taxonomy of the Coleoptera a few deal with larval forms, Hung-Fu Chu on the larvae of the carabid subfamily Harpalinae, and Ritcher on the Scarabaeidae. Several short papers dealing with adult forms appeared: Dillon and Dillon on the cerambycid tribes Pachypezini and Onciderini; Fisher on the Eucnemididae of Central America and the West Indies; Brown on the chrysomelid genus Calligrapha in Canada; Blake on the chrysomelid genus Galeruca; Potts on the scarabaeid tribe Cremastocheilini. Valentine contributed an interesting discussion of speciation in Pseudanophthalmus.

On the taxonomy of Lepidoptera, Heinrich revised the phycitid genus Fundella, Nabokov wrote an extensive paper on the neotropical species of the lycaenid subfamily Plebejinae, and Forbes classified the pupae of the Geometridae.

Several extensive papers dealing with the classification of the Hymenoptera have been published. Townes contributed the second part of his classification of nearctic Ichneumonidae. Smith contributed a classification of the braconid subfamily Aphidiinae in North America. Pratt published a taxonomic study of the nearctic species of the ichneumonid tribe Cryptini. Cushman described a large number of new neotropical species of the ichneumonid genus Cryptanura. Ross contributed a taxonomic outline of the tenthredinid genus Pachynematus.

Although the taxonomic contributions to our knowledge of Diptera in recent years has been weighted in favor of the mosquitoes, owing to war conditions, other groups have been studied. Alexander continued his descriptions of new species of crane flies, both nearctic and neotropical. A number of taxonomic and descriptive papers on mosquitoes were published, most of them short or dealing with one or a few species, or consisting of lists. Only two are mentioned here. Daggy described the biology and seasonal cycle of *Anopheles* *farauti,* the most important malarial vector in the Australasian region. Aitken published a noteworthy paper on the anopheline complex of western America, dealing with the taxonomy, bionomics, distribution, and disease relationships of the group. Two books on mosquitoes, both by well-known authorities on the subject, appeared—Headlee's *Mosquitoes of New Jersey and Their Control* and Matheson's second edition of the *Handbook of the Mosquitoes of North America.* Townes wrote an extensive paper on the chironomid tribe Tendipedini of the nearctic region, 201 species, with abundant illustrations of morphological characters of taxonomic significance. Although not systematic, the publications on the morphology of the head in Culicidae and Chironomidae by Cook have taxonomic importance, as also does, perhaps, the critique of the conception of the labellum in Diptera by Goldschmidt.

Among contributions to the taxonomy of higher Diptera, Brooks described 26 new species of Tachinidae and Reinhard four new genera and 11 new species of the same family, while Bequaert revised the hippoboscid genus Lynchia.

MORPHOLOGY

In the strictly morphological field Stojanovich discussed the head and mouth parts of the sucking lice (Anoplura). Of particular interest are his views regarding the identity of the three piercing stylets. He regards the dorsal one as the free part of the hypopharynx, the middle as an extension of the salivary duct, and the ventral as the modified ligular. Williams discussed the anatomy of the internal genitalia of beetles, basing this on representatives of males of 11 families and females of 10. The external morphology of the beetle *Calosoma scrutator* was described by Bostwick. Nicholson compared the morphology of the mouth parts of the non-biting blackfly, *Eusimulium dacotense,* with those of a biting species, *Simulium venustum.* The former does not bite because it can not. Ferris has discussed the evolution of the head in insects.

Three papers on blood and on pigment formation are of interest. Yeager's discussion of the blood cell picture and function in the southern army worm is excellent and well illustrated. This author divides the blood cells into 10 main classes and discusses the changes in the kind of cells during larval life and the functions of these cells. The cells of the adult blood are in turn different. The larval stage can usually be determined by an examination of the blood cells. Yeager and Heishman discussed some effects of antisera on the larvae of the above insect. Saline extracts of haemolymph and other tissues were injected into rabbits, and the antisera tested on 5th and 6th instar larvae. Reversible cellular changes in the haemolymph occurred. Metcalf discussed the mechanism of chlorophyll metabolism in the squash bug and its relation to the formation of pigments in the body of the bug.

APICULTURE

In apiculture three subjects have recently received considerable attention by beekeepers, the use of pollen substitutes, the control of American foul brood by the use of drugs, and the poisoning of honeybees by insecticides. Soybean flour, fortified by other substances, is being recommended as a pollen substitute during periods when natural pollen is not available to bees. Haseman tried sulfa drugs as a control for American foul brood. By feeding 0.5 grams of sulfathiazole per gallon of syrup he controlled the disease in badly infected hives and brought the colonies back to a healthy condition. If further research supports these findings, it marks the greatest forward step yet made in the control of this serious disease. The bee poisoning situation is becoming acute and is the cause of much concern among apiarists. The indiscriminate use of insecticides, particularly arsenical dusts, in controlling pests frequently has as an aftermath the elimination of bee colonies. Beekeepers have in the past feared the use of DDT would make matters worse, but this may not be true if future investigations bear out current opinion. In fact, as far as bee poisoning is concerned, DDT appears to be less dangerous than arsenicals.

DDT AS AN INSECTICIDE

The insecticidal properties of DDT and the practical use of this insecticide have dwarfed in effort all other insecticide research. The individual published contributions are too numerous to mention here, but some of the significant phases of research and practice will be noted. First as to the toxic effect on insects, the chemical apparently penetrates the cuticle (it is also a stomach poison) through those thin-walled areas covering sensory nerve terminations. It acts on the nervous system, causing tremors and death. The insects are poisoned when they crawl over a surface coated with DDT in crystalline form, the so-called residual effect, as well as when the DDT is sprayed or dusted directly upon them or when they consume the insecticide with their food. The exact nature of the toxic action has not to date been adequately explained, although many physiologists are working on the problem. The DDT molecule contains lipoid soluble and toxic radicals, and to exercise a toxic effect the toxicant must penetrate the tissues and act on the cells. The epicuticle of insects is of a lipoid nature, and the nervous system of insects contains lipoid material. Moreover, lipoid soluble materials appear to accumulate in the insect nervous system regardless of the mode of entry into the body.

The versatility of DDT as an insecticide is demonstrated by the large number of insect species to which it is toxic. The army louse powder contains 10 per cent by weight. Amounts as low as 0.1 of a pound per acre of water surface are very toxic to Anopheles mosquito larvae. If the walls and ceilings of a room are sprayed with a DDT solution in kerosene so that 200 mg. of actual DDT per square foot are deposited, the deposit remains toxic to flies and mosquitoes for many weeks. A single application of a kerosene solution to a mattress will remain toxic to bedbugs for months. Doses of 0.25 to one pound per acre of forest will control caterpillars which feed on the foliage, including the gypsy moth. The spruce budworm, which is in an outbreak stage in Ontario and Quebec and is present in alarming numbers in Vermont and New York, may also prove to be subject to control by DDT applications. This insect, owing to certain biological peculiarities, has not been successfully controlled by insecticidal applications to date. DDT is an excellent insecticide for the control of the codling moth on apples, the oriental fruit moth on peaches, adult and larval stages of the Japanese beetle, flea beetles and leaf hoppers on potatoes, bugs affecting seed crops, and flies and lice on cattle. On the contrary, some pests are not well controlled by applications of DDT, as the plum curculio, the cotton boll weevil, red mites on fruit trees, certain species of aphids, the 17-year locust, etc.

In the practical application of insecticides the formulation of materials is important. DDT is quite flexible in this respect. It is not soluble in water but is soluble in a large number of organic solvents. It can thus be used in pure solutions. It can also be mixed with certain other materials and used as a suspension in water or as an emulsion. For dusting purposes it can be mixed with carriers to any desired content.

With such flexibility DDT lends itself to application by various types of distributing apparatus, in particular those adapted to the distribution of concentrated mixtures. Experiments have demonstrated that concentrated solutions of DDT can be applied by aircraft, either the standard type of plane or the helicopter, and by certain ground machines which have been termed "mist blowers" and "smoke generators." Several types of apparatus are under development at the present time and appear to be very promising for future use, both for the protection of agricultural crops and forest trees, and for the elimination of insects hazardous to human health, as mosquitoes and flies. For household use, DDT can be applied by either the ordinary type of household spraying apparatus or by means of the so-called "aerosol bombs." The latter have, of course, been successfully used by the armed forces of the nation for some time, and thousands have been sold to the public since the end of the war.

The effects of DDT on warm-blooded animals have been and continue to be investigated. The chemical is certainly toxic to warm-blooded vertebrates when taken in sufficient quantity, but it does not appear to be quite so toxic as more orthodox insecticides such as lead arsenate. For that reason Federal officials have placed a tolerance of seven milligrams per kilo on fruits and vegetables offered for sale on the market. One of the disturbing factors about DDT is the recently demonstrated transmission of the insecticide through the milk of mammals. Just what effect this will have upon its use is problematical.

In as much as this insecticide is being experimentally used on forest areas for the protection from insect pests, for which purpose it offers great promise, its effect on so-called wild life has also been investigated. It is quite toxic to fish and other cold-blooded vertebrates, and the elimination of insects in forest areas may have some effect on the bird population, either by poisoning nestling birds which are fed poisoned insects, or by driving away adult birds from the insect depleted areas. This matter is also being thoroughly investigated, and sufficient data should be obtained in the near future to arrive at some conclusions in the matter. However, by proper timing and by reducing the amount of material used in the forest, it is hoped that no great effect on wild life will be caused by its application.

ORGANIC INSECTICIDES

The development of DDT has stimulated a great amount of research in organic insecticides, particularly by the chemical industry, and future developments of interest and practical importance may be expected along these lines. It would be a boon to economic entomologists to be able to get away from metallic compounds. One material in particular, Gammexane, looks very promising at the present time. Chemically this is hexachlorocyclohexane ($C_6H_6Cl_6$), of which the gamma isomer is the important constituent. In some respects this is more toxic than DDT, but whether or not it will be so generally useful remains to be seen. Recent investigations of insecticides used by the Germans during the war for control of various pests, including body lice and bedbugs, have brought to light several compounds including mixtures containing DDT. The future use of these is problematical.

ECOLOGY OF INSECTS

In regard to the general ecology of insects, Wellington has published some very interesting information regarding the conditions governing the distribution of insects in free atmosphere. This is of considerable importance in the distribution of many insect pests, and Wellington stresses particularly the importance of ascending air currents (that is thermal convection currents) in distributing flying insects over the countryside. He concludes that under the usual conditions the insects are not exposed to lethal temperatures when so carried. Ludwig discussed quite at length the effect of atmospheric humidity on animal life, particularly among invertebrates, a subject of great interest to insect ecologists.

An interesting paper on the ecology of insects was published by Williams, who gave a statistical analysis of the relative number of individuals and species in a population according to a formula developed by R. A. Fisher, using as material Lepidoptera captured in light traps at certain stations.

He employs the logarithmic series and the "Index of Diversity" for interpreting biological results relating to the sampling of populations. The ecology of the Japanese beetle has been a subject of interest for some years, and Hawley and Dobbins recently discussed the distribution and abundance of the Japanese beetle for a nine-year period from 1935 through 1943, in which they emphasize the importance of certain factors that influence the general behavior of the beetle population. They conclude that the most important population depressors in the generally infested area are lack of rainfall and the so-called "milky disease" of the grubs, the former being an irregularly intermittent factor, and the latter being population dependent.

INSECT SPECIES

Among the many publications dealing with certain species of insects several are of general interest. Weber discussed at some length the biology of fungus-growing ants in Trinidad, this being a continuation of previous papers on this interesting group. He includes biological notes on a large number of species found on this island. The utilization of insects to control cactus has been a subject of interest for a number of years. The paper by Bugbee and Reigel on the cactus moth, *Melitara dentator,* in western Kansas is a contribution in this field. This insect bores in the pads of the plant and has reduced the cactus stands 50 to 75 per cent in certain parts of Kansas. Given adequate cover, plus sufficient rainfall, the larvae serve as a very material check on the prickly pear cactus in short grass range lands. It is interesting to note that these authors find that overgrazed range lands, where considerable dusting may have occurred, never yielded many infested cactus pads.

Many sucking insects inject toxic materials into plant tissues during the feeding process. At the same time virus diseases may be transmitted by such feeding activities from infected to healthy plants. The curly top disease of beets and aster yellows are virus diseases in point. However, Severin *et al.* have discovered that certain symptoms resembling those of curly top or aster yellows could be induced by the injection of the saliva of *Xerophlora vanduzeei,* that these symptoms are not the result of the injection of a virus into the plant but are owing solely to salivary action. The symptoms are not transmissible and are systemic in the plant.

PUBLICATIONS

Among a number of books, some of them popular or semi-popular and some of them purely scientific, which were published during 1945, a few should be mentioned. W. R. Thompson *et al.* published two more parts to the *Catalogue of the Parasites and Predators of Insect Pests.* This is a very important and significant contribution to the parasitology of insects. Pyenson published a small book on pest control in the home garden which is of particular interest to the layman. Mallis wrote a handbook of pest control which deals with household pests and should be very useful. Horsfall's recent contribution, entitled, *Fungicides and Their Action,* should be of great interest to entomologists as it covers several important phases of plant protection and brings the problem up to date. Among the popular books a most interesting volume was published by Beebe entitled, *The Book of Naturalists.* Several sections are of particular interest to entomologists, as those by Réaumur on ants, Wallace on mimicry, Maeterlinck on bees, Wheeler on termites, etc.

BOTANY

By HOWARD J. DITTMER
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EVOLUTION

Philosophical treatises and papers of a general character were more prominent in the evolutionary field in 1945 than studies of a specific nature. However, many articles that could appear in this category will be found under the titles Genetics and Cytology.

Among the specific studies was one made by Cleland on the genetic relationships in the genus *Oenothera*. He considers the several great groups as of hybrid origin, but, because of their self-pollinating habit, they can not be readily distinguished from each other phenotypically. Another outstanding report was by Babcock on the genus *Crepis*. His cytological studies of the chromosomes of various species of *Crepis* enabled him to arrange the members in a phylogenetic sequence which he correlated with previous systems. He also emphasizes the role of geographic distribution, gene mutation, and differentiation of species under pressure of natural selection in the twenty to thirty million year interval since the origin of the genus.

CYTOLOGY

Investigators in this field contributed some excellent papers on chromosome studies of many different plants. Included plant groups were members of the genera *Vaccinium, Lupinus, Hyacinthus, Pisum, Lolium, Gasteria, Tradescantia, Betula, Salix* and many others.

A monograph on the technique of using the electron microscope in plant cytology was published by Elvers. He reports that the tissue is first embedded in paraffin and then cut very thin. After treatment with xylol and chloroform, the tissue was dried. This apparently did little or no harm to the tissue. It is Elvers' conclusion that the electron microscope can reveal more than ordinary microscopes in cytological studies.

Epstein described a water method for rapid demonstration of mitotic divisions in *Allium cepa* root tips. A one-minute boiling water bath is used in place of the usual 18 hours fixation with Carnay's solution.

Among the interesting chromosome count papers, Johnsson studied 17 trees from different parts of Sweden of the species *Carpinus betulus* and found N=32 and 2n=64, in contrast to number N=8 found by other authors. Mahabale and Gorji, two investigators of the Bose Research Institute in Calcutta where much excellent work is being done, found that *Riccia himalayensis* had seven long chromosomes and one short or N=8. In most species of Riccia 2N=8.

GENETICS

X-ray induced mutations were obtained by Jacob working with Jute. The mutants grew to a height double the controls but were without lateral branches. The new forms were not desirable. Nielsen studied the chromosome number of 59 races of *Panicum virgatum* and found a wide polypoid series of somatic chromosomes. Over 7,000 comparisons were made with significant growth differences determined and not influenced by the environment.

Powers revealed that crosses made between inbred tomato lines showed no heterosis but were intermediate between the parents. The hybrids did produce more fruit by weight than either parent. Allen reviewed the genetics of Bryophytes covering 107 articles and discussing such subjects as heteroploidy, monoecism and dioecism, sex chromosomes, intra- and inter-specific compatibility, mutations involving sex characters, vegetative characters and genetic analysis.

These same subjects were covered by a great many authors and investigators, including Anderson, Cooper, Goodwin, Lindegren, Newcomer, Bergner, Lammerts, Artswager, Sax, Tysdal, and Gustafson.

Fungi, which were prominent in genetics studies, were *Neurospora, Penicillium, Aspergillus,* and Yeast. Morphological investigations and nuclear behavior in the formation of fruiting bodies were particularly observed.

Plants of economic importance had a top priority in the genetics studies because of the great importance these plants have today and the promising future they will have when even more is known about them. Increases in yield, quality, disease resistance, and vigor often follow changes in the plant's chromosome complement. Workers in our Federal and state agricultural research stations have contributed much in this direction. Private research institutions and university faculties have also made eminently valuable discoveries and developed ordinary plants to a high degree of yield and perfection.

ECOLOGY

Erosion studies again confirmed the reports that crop rotation proved better than continuous cotton, while continuous cotton was better than bare fallow. Grassed waterways for handling runoff from agricultural areas were carefully checked. Bermuda, Italian ryegrass, redtop, and orchard grass form a good lining for such waterways.

Southwestern lands were studied considerably with a view toward their greater yield under methods of water spreading. Promising results have been made in many sections as a result of these experiments.

Control of Klamath weed by using Ammonium sulfamate and commercial borax was investigated by Allgair. Twig elongation near New Orleans was observed by Penfound and Borck. Shull made some observations of vegetational changes on an island in the Mississippi, while Godwin analyzed pollen of the Quaternary period from post-glacial bogs.

In the limnology section, Biswas wrote of the important role salt and fresh water plants play in maintaining life for animal organisms. Seaweeds are used for food, culture media, heat and cold insulation, manufacture of I, C, K, Ca, N, SiO_2, and manure. Diatoms are used in the manufacture of dynamite. Such studies indicate that we are making very little use of plankton and much could be done in this direction.

MacDougal and Dufrenoy studied mycorrhizal symbiosis in *Aplectrum, Corallorhiza,* and *Pinus.* Stover described the varying structure of conifer leaves in different habitats. Hall and Penfound continued their investigations of the American lotus and included a description of the anatomy and morphology. The survival of buffalo grass following as much as 19 months submersion and under as much as 59 inches of water was reported by Porterfield.

Holscher studied the effects of clipping bluestem wheatgrass and bluegrama at different heights and frequencies. His recommendation is that these grasses in pasture be given time to recover by non-grazing at certain periods since clipping and therefore grazing injures the plant and slows its growth.

Weaver and Zink described the longevity of the seminal roots of certain grasses. They confirmed earlier studies that grass seminal roots are persistent and not ephemeral as once believed.

SYSTEMATIC

G. W. Martin described new species in *Pseudovalsa, Sebacina, Pellicularia, Peniophora,* and *Cymatella.* He also described the fungus genus *Cheiromyces* including a new species *C. digitatus* and discussed the relationship of this genus to other genera. F. J. Seaver made another contribution in the mycoflora of Bermuda, including the descriptions of ten new species.

A study of hepatics in Canada was made by Brinkman, while Bryophytes of Greenland were described by Lee.

Coker listed the woody Smilaxes of the United States, reducing the number of species to 11 of which nine are in the eastern temperate part of the country.

All groups of the plant kingdom were represented in the various systematic sections but space does not permit the inclusion of very many of them. Most systematic papers of the higher plants come from less populated areas, particularly tropical.

Tiffany studied the Oedogoniales of Florida. Schweinfurth reported on a number of Peruvian plants. Moldenke published new data on several groups of tropical plants, including the Verbenaceae and Avicenniaceae. Harrington continued his study of Rocky Mountain flora with a key to some Colorado grasses in vegetative condition.

Paleobotany included papers by Chaney, who described a fossil cactus of Utah; Banks listed a new Devonian lycopod genus from southeastern New York called *Colpodexylon;* Arnold reported on a heterosporous species of Bowmanites from the Michigan Coal Basin—based on compressed strobili; and Wilson reviewed spores and pollen as microfossils, including studies of the microfossils of Paleozoic, Mesozoic, and Cenozoic age.

MORPHOLOGY AND ANATOMY

Sharman described leaf and bud initiation in the Gramineae. Sinnott found that in cucurbits growth caused, either by cell division or by an increase in size of cells, increased dry weight in proportion to size and therefore could conclude that the dominant biological individual here concerned is the organ as a whole rather than any of the cells which compose it.

Johansen reviewed the present status of plant embryology. He declared that many botanists are unaware that embryology is an exact science. Following his study of the anatomy of peach and cherry phloem, Schneider concluded that the bark of cherry is thicker than that of peach because the old secondary phloem of cherry undergoes little crushing.

Various types of periclinal chimeras in Datura in relation to the development and structure of the ovule were reported by Satina. Walton described the roots of *Equisetum limosum* L. and compared them with the roots of Calamites. The roots have hexarch xylem. Lewis studied the geometry of growth and cell division in columnar parenchyma. The foliar sclereids of *Trochodendron Araloides* were described by Foster.

The embryology of *Paspalum dilatatum* was studied by Bennett who found that the embryo matured 14-18 days after pollination. Isenberg described the anatomy of redwood bark. He stated that the bark was composed of secondary phloem, living and dead, and periderm. A detailed description of the ontogeny and anatomy of the apple leaf was given by MacDaniels and Cowart.

MINERAL NUTRITION

Lindner and Harley studied the nutrient interrelations in lime-induced chlorosis on pear, apple, peach, and cherry based on leaf analysis of Ca/K balance. Fe was usually low in chlorotic leaves but occasionally it was higher than in green leaves. N, P, and Mn were found to be in no way correlated with lime induced chlorosis. It was suggested that, in Calcareous soils when Fe approaches the limiting level, an upset in Ca/K balance may induce chlorosis by preventing the formation of an iron-containing enzyme which functions in chlorophyll synthesis.

Manganese as a substitute for magnesium in the metabolism and anabolism of the cell was noted in one study. Another noted that absorption of selenium by corn from *Astragalus* extracts was much greater than from Na selenite. Babicka found that some plants absorb gold in colloidal form but none in metallic form. The amount is small, and whether or not it is necessary for vital activities is unknown.

Iron and Mn in plant nutrition were discussed by Pearse who noted identical pathological symptoms with an excess of Fe and a lack of Mn, and those symptoms induced by an excess of Mn were identical to a lack of Fe. Kramer reviewed the absorption of water by plants and Arnon and Hoagland reviewed plant nutrition studies by artificial culture methods.

AUXINS, GROWTH SUBSTANCES

Rooting substances—indolebutyric acid, naphthalenacetic acid, and naphthalene acetamide—by the concentrated dip technique proved very beneficial in the rooting of *Derris* and *Lonchocarpus*. Induced fruit setting and in many cases production of seedless fruits by 4-chlorophenoxyacetic proved effective by the aerosal method. The growing of seedless fruits by use of chemicals was discussed, especially for tomatoes and cucumbers. These are a few of the many interesting and beneficial experiments conducted during the year with our new growth substances.

Further experimentation will undoubtedly yield many additional desirable fruits and induce the rooting of difficult plants. The future of auxins is indeed bright.

VITAMINS

Fa, Cheng, Roy showed that dry seeds of soy bean had practically no ascorbic acid, but upon germination it greatly increased, reaching its maximum about the fifth or sixth day and thereafter declines. Gustafsson and Schroderheim found that fertility of the tips in several spp of *Rosa* was greater with a lower ascorbic acid content.

PHOTOSYNTHESIS AND PIGMENTS

Chlorophyll, carotenoids, and other pigments of the chief algal classes were reviewed by Cook. A consideration of the photosynthetic activity of the pigments and relation to sexual reproduction in *Chlamydomonas* was given. Stodola isolated the new pigment penitrinic acid ($C_{15}H_{17}O_5N$) from cultures of *Penicillium notatum*.

Several papers on the yield of O_2 production by chloroplasts suspended in various solutions were presented. Studies on the fluorescence of chlorophyll, both *a* and *b* were made by Zscheil using fourteen different solvents. The effects of concentration, reabsorption, temperature, and fading were considered.

Seybold restated his theory that chlorophyll *a* is concerned with the formation of glucose whereas chlorophyll *b* is involved in the polymerization of glucose to form starch. The theory is based on the phylogenetic correlation of chlorophyll *b* occurrence and starch formation.

Fox *et al* examined mud samples of great age from the ocean floor for their carotenoid and chlorophyllous degradation products. The results were discussed in relation to marine biological pigments and to petroleum formation.

GROWTH AND REPRODUCTION

Hildebrandt and co-workers successfully cultured excised tobacco and sunflower tissue in vitro. The tissues grew best where sugar was high and pH was about 5.9.

Temperature and growth relations of the roots and hypocotyls of cotton seedlings were studied by Arndt. He found protrusion of the radicles occurred most promptly at 33° C. Variations in optimum temperature for best root development were noted with different ages in the roots.

Anderson, Edgar, and Schregardus noted that length of internode in plants was more the result of heredity and hormone factors than any external factors. Cultures of excised stem tips of *Asparagus officinalis* were maintained for nine months through 20 successive transfers by Loo. Developmental responses in isolated plant tissue were observed by White. His results indicated that genetically induced tumors could be controlled in growth pattern by manipulating the conditions of aeration of the culture.

GERMINATION AND DORMANCY

Anderson found that freshly harvested Kentucky bluegrass seed will germinate satisfactorily. Filter paper moistened with N/100 KNO_3 increased germination. *Scirpus* seeds required three to six months of moist stratification at 2-4° C. before germination for the 14 species studied. The large-seeded forms often still will not germinate unless treated to conditions of high illumination and temperature. Mechanical methods and H_2SO_4 treatment were not effective.

Treatment of clover (*Trifolium* spp.) for germination showed variations in the amount of dormancy required. Generally the longer the dormancy period, from 4-16 months, the sooner the seed germinated after sowing.

A good many experiments were conducted to determine the longevity of seeds. Generally the experiments showed that increased moisture in the atmosphere of the storage houses increased the length of time seeds may be stored with high viability. Crocker discredited stories of viable mummy wheat. He found that cereal seeds do not live beyond 25 years in ordinary air storage. *Nelumbium* has been found to live 250 years in a herbarium as the oldest known living seed. It was suggested that age-degeneration of dry seeds is caused by gradual degeneration of the nuclear mechanism.

OSMOSIS

Branner and Branner of the University of Istanbul, using cellophane membranes and also bean seed coats, found that permeability to water was greater under acid than under alkaline conditions. It was concluded that H-ions neutralize the negative charge of the micellar structure thus resulting in a decrease in swelling and a reduction in the electrostatic braking force to which water threads moving through the membrane are subjected.

Beams and King centrifuged pollen grains of *Vinca rosea* at 20,000 times gravity. As a result, 70 per cent of the pollen tubes germinated on the centrifugal side. Displacement of hormones, enzymes, or the establishment of a physiological polarity by such displacement are possible explanations of these results.

Steward *et al* investigated the absorption and accumulation of solutes by living plant cells. Time and temperature effects on salt uptake by potato discs and the influence of the storage conditions of the tubers on metabolism were included.

RADIATION EFFECTS

Gupta and Sen found that reducing the length of day by about three hours on Jute induced much earlier flowering and resulted in shorter plants, fewer leaves, and nodes but more branches.

Rooting greenwood cuttings of *Citrus, Hibiscus* and other plants was more successful under controlled conditions in a basement with fluorescent lamps than in similar controlled conditions in sunlight.

White found that Canadian Wonder beans produced 71 per cent greater yield under a 9.1-hour day than under the usual 11.3 hours of light.

Driver and Hawkes experimenting with potatoes found little effect in length of day. They suggest that flowering with the potato is not dependent on the photoperiodic mechanism but rather on the quantity of light received.

Olmstead studied the growth of twelve geographically different strains of side-oats grama by planting them in a Chicago University greenhouse. The varying responses to the Chicago latitude suggest that grama will reasonably well adapt itself to different latitudes.

Many more studies were made on the effects of radiation including different wave-lengths and varying photo-periods. The increasing number of papers presented this year in this section of Plant Physiology certainly indicates its primary significance.

ENZYMES

Most of the work on enzymes this past year was reported from foreign countries, namely, Sweden, France, Austria, England, Russia, and India. Two plants appearing prominently in the literature in this connection were the sugar beet and potato.

One United States paper reported an enzyme system isolated from the potato that is capable of catalyzing the conversion of glucose—1—phosphate into a polysaccharide which is probably the amylopectin component of natural starch.

A few Russians observed seasonal fluctuations in the direction of activity of invertase and its bearing on the accumulation of sugar in sugar beet.

TOXICITY

Trelease investigated the influence of plant extracts, proteins, and amino acids on the accumulation of selenium in plants. He noted the effect of Se accumulation in one of the few recorded cases in which an organic compound has been shown to increase the absorption of an inorganic element by plants.

Studies of certain herbicides in soils disclosed that ammonium thiocyanate is extremely toxic when first applied to soils. It is not readily available in soil and becomes soluble slowly; it gradually increases the soil fertility. Juglone, the active agent in walnut toxicity, has been used as a cure for bacterial and fungus diseases of the skin.

PHYTOPATHOLOGY

Diseases caused by fungi, bacteria, viruses, animal parasites, and seed plant parasites covered most of the work done by plant pathologists in 1945. The major work was done by investigators in the state and Federal Departments of Agriculture, whose chief concern was the applied nature of the diseases.

The papers were far too numerous to mention, but one of the rare diseases included was Oak wilt. This disease is caused by the fungus *Chalara quercina* getting into the vascular tissue. The infection is extensive among oaks in western Wisconsin and the upper Mississippi Valley. The fungus infects trees of all sizes and ages in whatever kind of soil or situation grown. Red and black oaks are more susceptible than white and bur oaks.

Non-parasitic diseases were less prominent in the literature but their significance from an economic standpoint is certainly great in some areas. Calcium deficiency, sodium carbonate as a toxic substance in water, and many others were reported. One paper from the cotton districts of Turkey told of a condition known as Topallik disease, characterized by lack of roots and the consequent drying up of the plant. The malady is ascribed to an abnormal rise in the salt content of the soil during summer drought.

ECONOMIC BOTANY

By H. K. Wilson

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REE WHEATGRASS

Ree wheatgrass (*Agropyron intermedium* and *A. trichophorum*), a new hay and grazing crop introduced by the U. S. Department of Agriculture from Russia, has been released by the South Dakota Agricultural Experiment Station. Franzke (South Dakota Agr. Exp. Sta. *Cir. 58,* 1945) reports that the new grass has proved very drought-enduring and better able to withstand more heat and dry weather than brome grass. Also ree wheatgrass is very cold resistant and does well on a wide range of soils. It is more tolerant of alkali soils than is crested wheatgrass. Franzke believes that the new crop is highly nutritious and palatable to all classes of livestock.

It is recommended that ree wheatgrass should be seeded in grass mixtures for pastures as it starts growth very early in the spring and remains green until late in the fall. The best hay is produced when the plants are harvested in the early bloom stage.

MUNGBEAN

The mungbean (*Phaseolus aureus*) is an annual legume, native of southern Asia where it has been grown for many years as a human food and forage crop.

Ligon (Okla. Agr. Exp. Sta. *Bul. 284,* 1945) reports that the crop is gaining in favor in Oklahoma because of its value for soil building, hay, silage, and pasture; also the seed may be used for livestock feed. Some types of mungbeans are utilized in growing bean sprouts for certain Chinese foods.

The mungbean plant is fairly free from disease and insect pests and is adapted to the same general area as the cowpea. The principal varieties are of the Golden Mung and the Green Mung, the names being based primarily on the color of seed. Some improved strains have been developed. Selection No. 12 is being multiplied and distributed in Oklahoma.

METHODS OF FORAGE HARVESTING AND STORING

Agriculturists are changing their methods of harvesting and storing forage products. It has long been recognized that many losses may occur during the time that a forage is ready for harvest and its ultimate consumption by livestock. A question of considerable interest is the proper time of harvest. Dexter (*Jour. Amer. Soc. Agron. 37:* 394-99, 1945) has made studies on the yield and sugar content of alfalfa hay cut at various times of the day.

No significant increases in the sugar content of alfalfa hay occurred from morning until night nor were there large decreases from evening until the following morning. When the alfalfa was in the halfbloom stage, it increased in dry matter yield about 100-300 pounds per acre per day. When the day was clear, there was a small but rather consistent increase in the percentages of sugar and starch as the day advanced. Rapid drying resulted in much less loss of sugars and starches than a slower rate of drying. Hay that was dried slowly in the mow lost much more sugar than that dried under ordinary field-curing conditions.

ALFALFA

Agronomists have long been concerned with the problems of alfalfa seed production. In some sections of the country it has been almost impossible to produce a crop of seed. Even in such areas, occasionally a heavy set of seed occurs; yet it is extremely difficult to determine the factors responsible.

Grandfield (*Jour. Agr. Res. 70:* 123-32, 1945) studied the relationships between organic reserves, air temperature, humidity, and soil moisture and alfalfa seed production under the conditions prevailing at Manhattan, Kan. He found that the optimum temperature for seed sitting was 80° F and that seed development was hindered when temperatures rose above 100°. Fertility increased as the relative humidity decreased from 90 to 10 per cent. When the temperature was 80° F lowering the relative humidity from 90 per cent to 10 per cent resulted in an increase of pods set of 24 per cent.

A high level of organic reserves gave an increased production of seed and the effect of the reserves was augmented when the soil moisture content was low. When the reserves were low, seed production was favored by high soil moisture.

An environment which gave a moderate air temperature, low humidity and low soil moisture resulted in a type of vegetative growth favoring the storage of high organic reserves and a physiological condition favorable to seed setting.

POTATOES

The storage of potatoes for any length of time presents numerous problems. The grower, in particular, frequently experiences considerable loss as the quality of the tubers falls rapidly when sprouting occurs.

Thomas and Riker (*Amer. Potato Jour. 22:* 104-13, 1945) report that the sprouting of Chippewa, Cobbler, Red Warba, Russet Burbank, Russet Rural, and Triumph varieties of potatoes stored at temperatures above 70° F was prevented for some time when treated with about 0.03 oz. of the methyl ester of alpha naphthaleneactecic acid per bushel. This chemical proved the most effective of the several included in the trials and appeared to offer a solution to certain potato storage problems.

Poisoning from sorghums has long been a serious problem confronting the farmer. Franzke (South Dakota Agr. Exp. Sta. *Cir. 57,* 1945) has developed a variety of forage sorghum, named Rancher, which he states has the lowest hydrocyanic acid content of any named forage sorghum in production. The new variety was produced by crossing two strains of Dakota Amber sorgo. Rancher is early maturing, medium in height, and produces somewhat heavier and leafier stems than Dakota Amber 39—30-S. It matures in 90 to 100 days and is adapted to all parts of South Dakota and to a wide range of soil conditions.

OAT IMPROVEMENT

The improvement of varieties of economic plants is a constant goal of the plant breeder. During recent years considerable attention has been paid to the breeding of disease resistant varieties of oats. Coffman, *et al* (*Jour. Amer. Soc. Agro. 37:* 479-98, 1945) report on the improvement and distribution of spring-sown red oats.

The spring red oat region is a belt from coast to coast across central United States, exclusive of the mountainous and desert areas, and includes the southern Corn Belt southward to the Cotton Belt where it overlaps with the fall-sown oat sections.

The need for developing rust and smut resistant varieties led to the initiation of hybridization efforts in 1926. Fulton, a smut resistant variety, was distributed in Kansas in 1939.

A crown rust resistant variety known as Victoria was introduced from South America and used in the making of numerous crosses with other varieties. From the Victoria X Richland crosses there resulted the Corn Belt varieties Boone, Cedar, Control, Tama, Vicland, and Vikota. Fultex was developed from a cross of Victoria and Fulghum. In 1931, it was discovered that the variety Bond possessed resistance to crown rust, and many crosses have been made with other varieties.

The results of these efforts have led to varieties possessing early maturity, high yielding ability, and resistance to the rusts and smuts. Of the more recently developed varieties, Ventura was distributed in California in 1944 and Osage and Neosho in Kansas in 1945.

SIMULATED HAIL

In many sections of the country great damage frequently results from severe hail storms. In the Corn Belt much damage is done to the corn crop each year and many growers protect themselves with hail insurance. It has always been a great problem to determine just how much damage was done by the hail and thus to affect a fair means of settling the claim against the insurance company.

Kiesselbach and Lyness (Nebr. Agr. Exp. Sta. *Bul. 377,* 1945) have conducted a series of controlled experiments in which they attempted to stimulate the damage done to corn by hail. Several mechanical devices were used to injure the corn plant. Leaves were shredded with a rasp-like instrument made from a narrow board with sharp, projecting nails. Also the stalks were bruised by striking them with a flail made of 10 wires each with the beating end rolled into a smooth round knob about the size of a hazel nut. In addition plants were defoliated at various stages of development.

For an average of nine years, plants cut off an inch above the ground level, when eight inches tall, yielded 67 per cent as much grain as untreated plants and 32 per cent when similarly cut off at a height of 16 inches.

In the early tassel stage, complete removal of the leaves reduced yield more than 99 per cent as compared with a normal grain yield. When approximately one-half of the leaf area was removed from the lower portion of the stalks, yield was 80 per cent of normal as compared with 41 per cent of normal when the leaves from the upper half were removed.

Yields were reduced from 46 per cent to 95 per cent of normal as a result of flailing the plant, with the damage being least at the early stages of growth as this permitted some recovery. Greatest reduction occurred from injury during the period between initial and full tasseling.

CORN

In the greater part of the Corn Belt, farmers are confronted with the possibility of a soft corn crop nearly every year. Soft corn is that corn which is not thoroughly matured at the time of frost and may spoil if special care is not taken to insure proper drying. The tendency of farmers to grow later maturing varieties tends to aggravate the situation.

During the growing season of 1945 rainfall was high and in general corn was late in maturity. Throughout much of the country a good deal of the crop failed to mature before frost. A new publication by Shedd (U. S. Department of Agriculture, *Far. Bul. 1976,* 1945) deals with the problems of handling and storing soft corn on the farm.

Some of the suggestions to reduce losses are: 1. Delay harvesting as late as possible; 2. Properly prepare the crib; 3. Do not harvest when corn is wet; 4. Thoroughly clean the corn to remove husks and silks; 5. Sort the corn to remove most immature ears; 6. Screen out the shelled corn and dirt at time of placing in the crib; 7. Provide ventilation for the crib; and 8. Place the corn in small cribs or piles to facilitate rapid drying.

A little extra care may make it possible to save a crop that may otherwise lose much of its value. Those growers who are feeding livestock have an opportunity to feed the more immature corn and thus reduce losses from spoilage.

POPCORN

In spite of the fact that popcorn is considered a luxury crop, there has always been a steady demand for a considerable quantity. During the war period consumption increased greatly, probably in part a reflection of the general level of available cash and the tendency for the public to consume greater quantities of luxury types of food stuffs.

According to Brunson and Smith (*Jour. Amer. Soc. Agro. 37:* 176-83, 1945) the popcorn crop of America in recent years fluctuated between 50,000 and 100,000 acres per year or about 0.1 per cent of the total corn acreage of the United States.

It has been possible to develop hybrids that have outyielded the better open-pollinated types. Also the new hybrids have possessed greater ability to withstand lodging, thus making them work suitable to harvesting with a mechanical corn picker.

Since the value of the popcorn lies in the quality of the final product much attention has been given to this phase of improvement. Through breeding it has been possible to secure much greater expansion from a given quantity of corn. Nearly all consumers of popcorn appreciate a tender, fluffy product that is free from a hard and unpalatable core. Freedom from objectionable hulls is desirable since their presence greatly lowers the quality of the popped corn.

Considerable progress has been made in making available to the public superior sorts of popcorn. The Minnesota Agricultural Experiment Station, in 1935, introduced the first commercial hybrid popcorn. The hybrid, minhybrid 250 gave a 16 per cent increase in yield and the grains were 29 per cent higher in popping expansion than the open-pollinated hull-less corn used as a check. Several other stations are engaged in the improvement of hybrid popcorn with the Purdue and the Kansas Agricultural Experiment Stations making notable contributions.

WHEAT FLOUR

The flour miller and the baker are confronted with the varying demands of the consumer since their success or failure is directly dependent upon satisfying these demands. With the development of new varieties of wheat, the problems of the flour industry have been complicated greatly. There is the never ending discussion of the interrelationships between heredity and environment.

Harris, Sibbitt, and Scott (*Cereal*

Chem. 22: 75-81, 1945) have investigated the effects of variety and environment on certain properties of North Dakota hard red spring wheat flours. Some 56 samples of flour were milled from wheat grown in North Dakota in 1943. A total of eight varieties was grown at each of seven locations in the state.

The authors reported very significant variations in flour yield, ash, protein content, and loaf volume between varieties and environment, with environment exerting the greatest influence. Significant differences in loaf volume of the bread were shown between varieties and stations where grown. Mixograms secured at uniform levels of protein indicated significant variations between varieties and environments for dough development stage, range of dough stability, curve height, and width.

SOIL FERTILITY

The maintenance of fertility is the concern of every farmer and naturally he is greatly interested in methods which require the least outlay in cash. For this reason, proper rotations and the use of residues and so-called crop wastes have been advocated by soil scientists for many years.

At the Pennsylvania Agricultural Experiment Station are located the oldest long time fertility plots in the Western Hemisphere. In a recent report by White, Holben, and Richer (*Jour. Amer. Soc. Agron. 37:* 21-31, 1945) rather startling results were brought to light. At the end of 72 years of experimentation, untreated grassland areas that had been undisturbed and had received no treatment throughout the years were higher in their nitrogen and organic matter content than any of the plots regardless of the rotation or treatment.

As the authors state, the results emphasize the importance of nitrogen fixation in the maintenance of soil fertility. The only source of energy materials supplied to the grassland soils was the sloughed off roots of grasses and weeds. These results are particularly impressive when related to a planned system of soil conservation.

WEEDS

Those undesirable plants, commonly classed as weeds, occasion great losses and require much additional labor each year. A rather recent development in weed control has been the use of so-called flame cultivation. Barr (Louisiana Agr. Exp. Sta. *Sugar Bul. 22:* 185-7, 1944) reports on trials made to control weeds in sugar cane. Over a period of three years test plots were subjected to the use of a flame to burn the weed plants. In some cases the cane was injured but the effect was temporary as the burned plots outyielded the control plots by 1.3 tons per acre. The cost of burning the weeds was computed at 60-80 cents per acre as compared with $6 per acre for hand hoeing. Under normal conditions, it was necessary to burn from three to four times during a season but the number of flamings will vary with the season.

Although many farmers prefer to use chemicals to control noxious weeds, it frequently is much more economical to meet the weed problems through planned farming methods especially suited to the situation. Often such a program can fit into the regular operations and thus add but little additional cost. Wilson, Larson, and Stahler (*Minn. Farm and Home Science 2:* 4-5, 1945) found that field bindweed (*Convolvulus arvensis* L.) could be eradicated through the use of competitive field crops.

The research conducted at the Lamberton Minnesota Weed Station proved that bindweed could be eliminated while producing crops each year. A duckfoot cultivator was operated at a depth of about five inches so as to cut the weed plants off low enough to give maximum delay to their recovery and thus permit more time for a newly seeded crop to become established ahead of the weeds. The number of cultivations was reduced by permitting the weeds to grow at least two weeks after emergence. This growth hastened the destruction of the bindweed since it was depleting its organic reserves in making new growth.

Of the several plans followed, the most practical and successful was to cultivate the area at intervals of two weeks until about July 1 when soybeans, sorghum, or sudan grass were seeded at a heavy rate. After seeding, a cultipacker was used to stimulate rapid germination. The crop was harvested for hay as late in the fall as possible. The treatments were continued over a period of three years, requiring a total of 14 duckfoot cultivations. For the three years, the sorghum produced a total of 13.2 tons of air-dry forage with the sudan grass and soybeans a little lower but production enough to make them economically profitable. At the end of three years all field bindweed plants were eliminated, and the value of the feed produced had practically balanced the cost of the labor required for tillage.

The development of Sinox (sodium-dinitro-ortho-cresylate) as a selective spray has led to many worthwhile developments. Litzenberger, Post, and Bingham (Montant Agr. Exp. Sta. *Bul. 430,* 1945) outlined their results in the use of Sinox to control certain broad-leaved annual and biennial weeds.

For most broad-leaved weeds the application was one gallon of Sinox with two pounds of either ammonium sulphate, sodium bisulphate, or monobasic ammonium phosphate in 100 gallons of water applied at the rate of 80 to 100 gallons per acre. The lower rates are applied to the more susceptible crops as pear and flax. Weed plants were killed most effectively when they had developed three to seven leaves. The cost of spraying one acre was estimated at about $3.50 to $4.50.

No injurious effects to the soil resulted from treatment. Yield increases as great as 264 per cent were obtained on light to heavy weed infestations. Not only were yields increased, but the labor of harvest was reduced, and the grain contained less dockage and foreign material.

PLANT BREEDING

The layman often thinks of the scientist as being a cold-blooded individual who moves ahead in his research with little or no consideration for human welfare. Martin (*Jour. of Heredity 36:* 99-106, 1945) presents evidence to refute this belief in a paper entitled "Breeding Sorghums for Social Objectives." Martin presents several examples to support his thesis that there are social aspects of plant breeding. One of the most striking is the work of the plant breeder in the development of barley varieties without the rough, harsh beards that often made barley production so disagreeable. Although yields tend to be lower with the smooth awn types, yet they were developed for the comfort of the grower. He points out further that the development of the waxy types of sorghum has made it possible to produce a satisfactory substitute for tapioca during the war years when it was not available. Martin states that the new waxy sorghum, Cody, was increased until 32,000,000 pounds of grain were available in 1944. Today, the substitute tapioca is found on the shelves of most grocery stores, and reports from housewives indicate that the new product is meeting with ever increasing favor.

PERIODICAL PUBLICATIONS

American Botanist
5257 Hinesley Ave., Indianapolis.

American Journal of Botany
Botanical Society of America, Burlington, Vt.

American Naturalist
Science Press, Lancaster, Pa.

American Scientist
Yale University, New Haven, Conn.

Annals of the Entomological Society of America
Ohio State University, Columbus.

Botanical Gazette
5750 Ellis Ave., Chicago.

Botanical Review
Botanical Garden, New York City.

Ecology
1000 Washington Ave., Brooklyn, New York City.

Journal of Economic Entomology
College Park, Md.

Journal of Experimental Zoology
36th Street and Woodland Ave., Philadelphia.

Journal of Mammalogy
University of Michigan, Ann Arbor, Mich.

Journal of Morphology
36th Street and Woodland Ave., Philadelphia.

National Horticultural Magazine
American Horticultural Society, Washington, D. C.

Quarterly Review of Biology
Mount Royal and Guilford Aves., Baltimore, Md.

Science
Smithsonian Institution Building, Washington, D. C.

Scientific American
24 West 40th Street, New York City.

Scientific Monthly
Smithsonian Institution Building, Washington, D. C.

Yale Journal of Biology and Medicine
New Haven, Conn.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

ACADEMY OF NATIONAL SCIENCES OF PHILADELPHIA, 1900 Race St., Philadelphia, Pa.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, Smithsonian Institution Building, Washington, D. C.

AMERICAN ASSN. OF ECONOMIC ENTOMOLOGISTS, College Park, Md.

AMERICAN ASSN. OF MUSEUMS, Smithsonian Institution, Washington, D. C.

AMERICAN MICROSCOPICAL SOCIETY, Kansas State College, Manhattan, Kan.

AMERICAN MUSEUM OF NATURAL HISTORY, Central Park W. and 77th St., New York City.

AMERICAN NATURE ASSN., 1214 Sixteenth St., Washington, D. C.

AMERICAN NATURE STUDY SOCIETY, 5540 Pershing Ave., St. Louis, Mo.

AMERICAN ORNITHOLOGISTS' UNION, Ohio State University, Columbus.

AMERICAN PHYTOPATHOLOGICAL SOCIETY, Bureau of Plant Industry, Washington, D. C.

AMERICAN SOCIETY OF NATURALISTS, Ann Arbor, Mich.

AMERICAN SOCIETY OF ZOOLOGISTS, University of Chicago, Chicago, Ill.

BOSTON SOCIETY OF NATURAL HISTORY, 234 Berkeley St., Boston, Mass.

BOTANICAL SOCIETY OF AMERICA, Osborn Botanical Laboratory, Yale University, New Haven, Conn.

CARNEGIE INSTITUTE, Pittsburgh, Pa.

CHICAGO MUSEUM OF NATURAL HISTORY, Roosevelt Road and Lake Michigan, Chicago, Ill.

ENTOMOLOGICAL SOCIETY OF AMERICA, Columbus, Ohio.

EUGENICS RESEARCH ASSOCIATION, Cold Spring Harbor, New York.

FRANKLIN INSTITUTION, Benjamin Franklin Parkway at 20th Street, Philadelphia, Pa.

GENETICS SOCIETY OF AMERICA, Ohio State University, Columbus, O.

MUSEUM OF COMPARATIVE ZOOLOGY, Cambridge, Mass.

NATIONAL AUDUBON SOCIETY, 1006 Fifth Ave., New York City.

NEW YORK MICROSCOPICAL SOCIETY, American Museum of Natural History, New York City.

NEW YORK ZOOLOGICAL SOCIETY, 630 Fifth Ave., New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

Paleontological Society of America, American Museum of Natural History, New York City.

Reptile Study Society of America, Inc., 536 E. 84th St., New York City.

Shaw Botanical Gardens, St. Louis, Mo.

Southern California Academy of Sciences, Los Angeles Museum, Exposition Park, Los Angeles, Calif.

United States National Museum, Tenth and Constitution Ave., Washington, D. C.

DIVISION XXIII

MEDICAL SCIENCES

MEDICINE, PATHOLOGY, AND PHYSIOLOGY

By Hamilton Southworth
Assistant Attending Physician, Presbyterian Hospital, New York

GENERAL

In the medical sciences the year 1945 is to be considered a war year. As in the two previous years, the majority of the younger physicians, those in the age group which is most productive in research, were serving in the armed forces. The contribution of these men approved for publication dealt largely with the problems of war medicine. Moreover, the investigative work carried out by civilian scientists in medical schools and teaching hospitals was largely stimulated and to a considerable extent financed by governmental agencies such as the Committee on Medical Research of the Office of Scientific Research and Development in Washington. Naturally such studies were designed to answer the specific demands of the armed forces.

A corollary of the military emphasis on research was the tendency to delay publication for reasons of security of new discoveries that might be of value to the enemy. In the English speaking countries a considerable body of new work thus accumulated, the results of which were known among more or less limited numbers of physicians and investigators, but the full details of which were not available to all. Following the termination of hostilities, most of the restrictions were lifted, but only a small portion of the accumulated material had appeared in the literature by the end of 1945. Most of the papers should appear in 1946.

ANTIBIOTIC THERAPY

If one had to characterize the year 1945 by its major interest, it would be best to group it with 1944 as the age of antibiotics. Assessments were made of the results from the widespread use of penicillin in war wounds, especially among Allied forces during the invasion of Normandy and the fighting along the German frontier. It was immediately apparent that the incidence of clinical wound infections was lower than in any other recorded campaign. It was also obvious that the captured German wounded, who had not had penicillin, had many more septic wounds. The temptation to hasty generalization was obvious, but it was equally apparent that the surgical handling of casualties was more expert than in previous wars and considerably better among the Allies than among the Germans. The triage and evacuation of casualties were also more skillful than in former comparable campaigns. Careful study revealed that the incidence of wound infection was dependent primarily on the speed and the adequacy of the surgery. It was generally concluded that penicillin played a contributory role and that, in the absence of proper surgery, it did little except possibly retard the spreading of infection into uninjured tissue. In the treatment of established infections, however, penicillin entirely lived up to its early promise and proved one of the most important factors in reducing the late mortality from wounds.

ORAL PENICILLIN

The great drawback of penicillin therapy has always been the necessity for parenteral injection. Moreover, the rapid excretion and degradation of the substance by the body has required that injections be repeated every two to four hours or be given by means of continuous infusion.

With the greater availability of penicillin, the possibility of oral administration using huge doses has been reinvestigated. Because of the known inactivation of penicillin at low pH values, preliminary studies were made in human volunteers who had previously received repeated doses of magnesium trisilicate in the hope of neutralizing gastric acidity. All subjects were kept in a fasting state, and serum concentrations of penicillin were determined periodically. It was found that, by means of oral dosage five times as great as that used intramuscularly, approximately equivalent serum levels were produced. Once the serum level was obtained, its die-away curve after oral and parenteral administration was approximately the same. It was found that the total urinary excretion during the first 12 hours averaged about 12 per cent of the ingested dose or roughly one fifth of the proportion excreted after parenteral administration. Since the concentrations found in the stools were negligible, it was presumed that the penicillin which was not absorbed was destroyed in the intestine, very likely by bacterial action.

In fasting volunteers who had received anti-acids, it was further discovered that the form in which penicillin was ingested made little difference. Serum concentrations were approximately the same whether the penicillin was given in water, in oil, or in oil and beeswax. Persons with achlorhydria maintained their levels somewhat longer than normal individuals. When the doses of penicillin were given after meals, it was found that the levels attained were considerably more variable and unpredictable. Under such circumstances, there was some evidence that a buffer of aluminum hydroxide gel increased and prolonged the absorbtion.

After oral administration of penicillin in fasting subjects, peak serum concentrations were usually attained in 30 minutes, whereas after meals the peak was generally not reached for two or three hours. It was assumed that absorption occurred maximally from the duodenum, though some might take place from the stomach itself. The only untoward effect encountered was slight discomfort associated with increased peristalsis.

These experimental studies with oral penicillin have been confirmed by clinical trials. A small number of cases of acute gonorrhea have been treated with 100,000 units orally every hour for from five to eight doses with results approximately as good as with the standard 100,000 to 200,000 units intramuscularly. Forty-five cases of pneumococcal pneumonia were treated orally with only one death and one serious complication, an emphysema. Dosages used were 750,000 units on the first day and 400,000 to 600,000 on subsequent days, usually given at two-hour intervals and without regard to the time of eating.

If the available supply of penicillin keeps up with the ever-increasing world demand, and technical improvements in production eventually lower the retail price below the present $1.50 per 100,000 units, oral administration will become the route of choice, because it is simple and painless and does not require trained personnel. For the time being, parenteral administration is preferred.

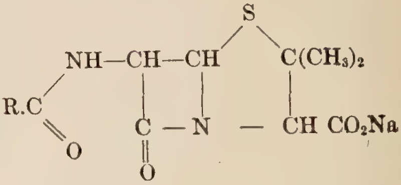
SLOW PENICILLIN

Studies of vehicles which will slow the absorption of parenterally administered penicillin have been actively pursued. The most promising of these is the mixture of beeswax and peanut oil first reported in 1944. The optimal concentration seems to be 300,000 units of calcium penicillin per cc. of a mixture containing 4.8 per cent beeswax. Preparation requires the purest materials and the greatest care, and the viscidity of the product is such that practice is usually required before injections can be successfully made. When, however, this "slow Penicillin" was given by subcutaneous injection in 300,000 unit doses, detectable serum levels were present for 24 hours in 64 per cent of the cases, and in 100 per cent of the cases for 16 hours. After 16 hours, 76 per cent showed levels of 0.1 unit per cubic centimeter or higher. Total urinary excretion in 24 hours was between 30 and 40 per cent. Reactions were negligible, the local soreness being little if any greater than after intramuscular injections of penicillin in saline.

Clinical results with slow penicillin are as yet fragmentary. There is doubt as to whether levels persist long enough to permit of optimal results with one injection daily, which is the goal of out-patient care. It is, however, an effective way of reducing the number of injections.

THE CHEMISTRY OF PENICILLIN

During the war, concerted efforts were made by both university and commercial investigators to discover the chemical structure of penicillin. It was hoped that out of these studies a method of synthetic production might be found, which would be simpler and less expensive than the present cumbersome methods of mold culture and extraction. The coordination of this research in the United States was under the Office of Scientific Research and Development and in Britain under the Medical Research Council. Preliminary reports indicate that several penicillins exist, all having the empirical formula $C_9H_{11}O_4SN_2.R$ and differing only as regards the substituent, R. The penicillins are strong monobasic acids which, on treatment with hot dilute mineral acids, afford one molecule of CO_2, the amino acid, penicillamine (identified as d-B,B-dimethylcysteine), and other products. Further studies show (1) that the acidic group in penicillin is identical with the carboxyl group in penicillamine, (2) that by the addition of water a second carboxyl is produced, and (3) that it is this new carboxyl which breaks down by the action of hot dilute mineral acids. The dicarboxylic acid produced by hydrolysis is termed penicilloic acid, and synthetic studies have shown it is a thiazolidine. When penicillins are held in dilute mineral acid solution at about 30°, isomerides, called penillic acids, are formed which can be converted into penillamines. The structures of the penillic acids and the penillamines have been determined. The prevailing opinions arising from this and other work are that the structural formula of penicillin is either



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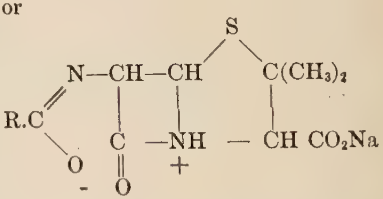


There is no indication that successful synthesis of any of the penicillins has been accomplished.

STREPTOMYCIN

In 1944 a new antibiotic was described which was obtained from Actinomyces griseus and given the name of streptomycin. It was shown to have an anti-bacterial action not only against many gram positive organisms but also against numerous gram negative ones. The tubercle bacillus was one of those that proved sensitive. These *in vitro* results were subsequently confirmed in experimental animals, and it was established that tuberculosis in guinea pigs was more sensitive to streptomycin than to any of the sulfone drugs, which had previously been the most active therapeutic agents in this infection.

The human pharmacology of streptomycin has been investigated, using bio assay by the cup plate or other related methods for quantitative determinations. Preparations have been manufactured that contain as much as 500 S units per mg. When such products were administered orally, no serum level was detectable at any time. Most of the compound was recovered in the feces. Incubation of streptomycin in normal gastric juice showed that no inactivation occurred at the end of three hours. It, therefore, appeared that the material was not destroyed but was poorly absorbed from the gastrointestinal tract. After intravenous injection, only very small amounts of the compound were found in the feces but nearly 60 per cent of the dose was detected in the urine. Serum levels were better maintained than was the case with penicillin, and renal excretion continued for a longer period. Studies of various body fluids indicated that streptomycin passed fairly readily into the pleural and peritoneal fluid, but that only minute amounts could be found in cerebrospinal fluid. The material was concentrated in the bile, where levels two to three times that in the blood have been found.

Early preparations of streptomycin often caused headache, flushing, and urticaria. With more purified batches, these reactions have been negligible, and the available evidence indicates that these histamine-like effects were owing to an impurity. It is, however, generally recommended that administration be by the intramuscular rather than the intravenous route. Febrile reactions and mild arthralgia are also generally attributed to impurities, but a few instances of apparent sensitization to streptomycin have been recorded. Therapeutic doses as high as 4,000,000 S units daily in divided doses have been given for weeks at a time without deleterious effects. Under controlled conditions, no significant changes in liver or renal function tests or in the hematological picture have accompanied routine dosage. Up to 20,000 units have been given intrathecally with impunity.

Clinical results with streptomycin are as yet fragmentary. Rather dramatic success has been reported in a few cases of influenzal meningitis and in a small series of tularemia infections. Gram negative and mixed urinary tract infections that proved resistant to sulfonamides have responded favorably. Results in typhoid have in general been disappointing. In tuberculosis the picture is not yet clear. Preliminary reports indicate that, though there is no dramatic effect, some active cases appear to become arrested and then to progress towards healing under prolonged administration in a way to suggest a limited suppressive effect. Chronic pulmonary infections seem little influenced.

Streptomycin is still in the experimental stage but it is the most promising antibiotic for gram-negative infections. With proper purification it can be safely administered in large quantities.

INFECTIOUS HEPATITIS

Hepatitis has long been known as a disease of military campaigns. In the Second World War, it was a significant military problem, especially in the North African and Italian campaigns. The clinical experiences of this theater furnish the best descriptions of the disease on record. The importance of the prodromal stage, which may precede icterus for from three days to three weeks, was stressed. The cephalin flocculation and the sulfobromophthalein dye retention were shown to be the most reliable liver function tests in this condition, and the value of the high protein as well as high carbohydrate diet in therapy was conclusively established. Perhaps most important of all was the demonstration of the necessity for bed rest as long as active hepatitis continued. Cases allowed up prematurely developed enlargement and tenderness of the liver with a recurrence of symptoms. The routine was, therefore, established of observing all convalescent cases most carefully as they got up, and of giving them an exercise tolerance test before returning them to duty.

The existence of a long-suspected variant of the disease, Infectious Hepatitis without Jaundice, was also established. These cases are generally milder and, not having icterus, are often overlooked. Their liver function tests, however, show similar abnormalities, and if they do not receive proper care they are equally prone to go on to a stage of chronic activity. Chronic hepatitis is an occasional sequel of improper care, particularly of the failure to obtain adequate bed rest, and may last for several months. The recurrence of liver tenderness on exertion is reported to be the best criterion of definite activity.

Cases of jaundice in the armed forces included not only Infectious Hepatitis but also Serum Jaundice, a condition originally described as following the administration of human serum. The great outbreak of jaundice in the U. S. armed forces that followed the use of the original serum containing yellow fever vaccine in 1941 and 1942, was of this type. After the invasion of France, it was noted that battle-casualties resuscitated by means of plasma or whole blood occasionally developed jaundice some 60 to 120 days later. Most of the cases were mild and impossible to differentiate clinically from Infectious Hepatitis, but a few were very rapidly fatal.

No experimental animal that is susceptible to either Infectious Hepatitis or Serum Jaundice has been found. Transmission experiments have, therefore, required the use of human volunteers. (Most of the American work was carried out under the sponsorship of the Board for the Control of Influenza and Other Epidemic Diseases of the Surgeon General's Office, U. S. Army). It has thus been shown that the agent of serum jaundice is filter passing, resists heating to 56°C for one hour, and remains viable for months in human blood products. It has never been consistently transmitted from one human to another except by the injection of blood products. It has an incubation period of 60 to 120 days, and an attack does not produce immunity to subsequent infection with Infectious Hepatitis. The agent of Infectious Hepatitis is also filter passing and is similarly resistant to heat. On the other hand, persons with Infectious Hepatitis carry the agent in the stool and sometimes briefly in the nasopharynx. Oral ingestion of the agent produces the disease in susceptibles. The incubation period varies from 20 to 30 days, and one attack generally confers immunity.

Successful prophylaxis against Infectious Hepatitis has been secured by the administration of human gamma globulin. This material is obtained by the fractionation of human blood plasma and represents the fraction containing the majority of the antibodies. It was observed that children given gamma globulin for the prophylaxis of measles did not develop serum jaundice, while those given human convalescent serum at times became icteric. Since pooled human serum occasionally contains an icterogenic agent, this observation suggested that the immune bodies of other donors might be so concentrated in the gamma globulin fraction as not only to destroy any agent present, but also to supply an excess of antibody. An opportunity to test this theory was supplied by an outbreak of Infectious Hepatitis in a children's camp in Pennsylvania, and it was shown that only 20.8 per cent of the children given an injection of gamma globulin developed jaundice, as against 67 per cent of the controls. Comparable results were obtained in two Army trials in the Mediterranean theater, and a recent report suggests that similar benefit may be obtained by the injection of gamma globulin in battle casualties who have been transfused and may, therefore, be in the incubation period of Serum Jaundice.

MALARIA RESEARCH

Extensive programs of research into the problems of malaria were carried out both in England and the United States during the war. One of the early problems investigated was the optimal use of atabrine, for the advance of the Japanese into the south Pacific in the winter of 1941-1942 cut off the Allies from their main source of quinine. Atabrine was at first considered the best available substitute for quinine, but as its properties were further appreciated, it was found to be actually superior to quinine under nearly all circumstances. Since it is probable that atabrine, or a similarly acting compound, will largely replace quinine in malaria therapy, the war's accumulated experience concerning its toxicity is of extreme importance. Gastrointestinal symptoms were found to be the commonest manifestation of intolerance, but it was soon established that a program of divided doses rendered them unimportant in all but the occasional, truly sensitive individual. In the southwest Pacific, however, it was found that a certain number of persons exposed to extreme tropical conditions developed skin trouble after a few weeks of the daily dosage of atabrine used as a suppressive for malaria. The skin lesions were named "atypical lichen planus," and consisted of violaceous, lichenoid, or eczematoid lesions, which tended to occur on the dorsum of the hands and feet, the face, neck, forearms, and legs. Some were explosively eczematoid, others more chronic and lichenoid. All healed slowly, were at times increased by exposure to sunlight, and were occasionally accompanied by exfoliative dermatitis, agranulocytosis, or aplastic anemia.

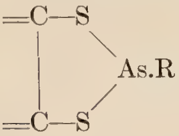
Large therapeutic doses of atabrine may be responsible for toxic delirium, and psychological disturbances have been reported in association with the usual suppressive doses. It is probable, however, that the latter represent the establishment of predetermined patterns in susceptible individuals. The occurrence of these dermatological and possible psychologic disturbances in association with atabrine makes it advisable not to take more than 0.7 gm. of the compound per week as a suppressive, or 2.8 gm. as a curative measure.

In the attempt to find an antimalarial drug more effective or less toxic than atabrine, over 14,000 compounds have been tested in various avian malaria infections under the direction of the Board for the Coordination of Malarial Studies. Compounds showing promise of activity were subjected to toxicological and pharmacological studies in laboratory animals. The results were quantitated, and some 80 of the most promising compounds were tried out in human malaria. Among the few that were shown to be superior to atabrine, were several 4-aminoquinolines. Of these, SN 7618 (7-chloro-4-(4-diethylamino-1-methylbutylamino) quinoline) has received the most extensive trial. It has been shown to be an effective suppressive when administered no more frequently than once a week in a well-tolerated dose. It will quickly terminate a clinical attack of *vivax* malaria and will cure *falciparum* malaria when administered for but one or two days. It is white and, therefore, does not color the skin, and the disagreeable gastrointestinal symptoms sometimes seen with atabrine do not occur. Several related compounds also show promise and require further investigation.

Studies of the 8-aminoquinolines have also been extensively pursued, and the old observation that Plasmochin in toxic doses has a definite curative action on *vivax* malaria has been confirmed, but so far no way of adequately avoiding the toxicity of such compounds has been reported.

BAL FOR TREATMENT OF ARSENIC POISONING

An important discovery resulting from wartime research in the means of protection against chemical warfare agents is the finding of BAL or British Anti-Lewisite. The activity of this dithiol compound in combining with Lewisite and Lewisite oxide was first demonstrated in England, and further applications were developed by joint Anglo-American endeavors. It was found that arsenicals strongly inhibited the pyruvate oxidase system, which was dependent on —SH groups for its activity. From this and other evidence, it became apparent that the toxicity of trivalent arsenicals was largely owing to their binding of essential thiol groups in enzyme proteins. The action of BAL was to compete successfully for the arsenic by means of its dithiol group to form compounds of the type



It was found, for instance, that if trypanosomes were subjected to lethal concentrations of arsenic, they lost all motility and began to show degenerative changes. The prompt addition of BAL resulted in their regaining motility and a normal cytological appearance.

BAL is itself moderately toxic. Large doses in animals cause salivation, vomiting, convulsions, and death. On the human skin, erythema and edema are produced, but put up in a sterile, benzyl benzoate-peanut oil solution, doses of 3 mgm. per kg. are well tolerated. For skin application, 5-10 per cent ointments were found effective. If lewisite was introduced into a rabbit's eye in an amount sufficient to destroy it, the installation of 5 or 10 per cent BAL up to five minutes after contamination led to almost complete recovery.

The development of a safe method of administering BAL parenterally made it possible to test it in arsenic poisoning resulting from antiluetic therapy or industrial exposure. Over 200 cases have now been treated, in general, with most beneficial results. The renal excretion of arsenic is increased, and toxic manifestations such as dermatitis and hemorrhagic encephalitis have improved.

It has been found that other heavy metals, such as Pb, Sb, V, Bi, Cd, Hg and Zn, inhibit tissue enzymes by combining with —SH groups. Enzymatic reactivation may be achieved by using certain BAL derivatives. The only clinical application of this work has been the use of BAL with encouraging results in a few cases of mercury poisoning. Useful application in other types of heavy metal poisoning may, however, be anticipated.

FOLIC ACID

For several years a number of closely related factors have been described which seem to be important for bacterial growth and for the prevention of anemia in certain animals. These have been designated the Lactobacillus casei factor, Streptococcus lactis R, the chick antianemic factor, vitamin B_c, vitamin M, and folic acid. It is now felt that these compounds belong to the vitamin B complex, that some are probably precursors of others, and that their essential activity can be expressed in terms of folic acid.

The antianemic action of this group of factors in the chick and the monkey led to their trial therapeutically in obscure human anemias. A synthetic crystalline preparation of folic acid has been prepared. Administration of small amounts of this material by mouth was initially reported as without effect on pernicious anemia. Subsequently, however, a number of cases of macrocytic anemias suggesting pernicious anemia were treated with large doses with marked benefit. Meanwhile, the similarity of human sprue to experimental Vitamin M deficiency in monkeys suggested a trial of folic acid. Parenteral administration of a few milligrams of folic acid has led to dramatic improvement in a few cases of sprue. It is apparent that in this new compound has been discovered an agent of value for at least some of the macrocytic anemias.

MODE OF ACTION OF INSULIN

It has been known for years that insulin was necessary for the proper utilization of glucose by animal tissues. Biochemists, however, have not been able to find a place where insulin might be required in the series of biochemical reactions which comprise the glycolytic cycle. It has now been reported that anterior pituitary extract (APE) inhibits the first step in the utilization of glucose, and that this inhibition can be counteracted by the addition of insulin. The reaction in question is Glucose + Adenosine Triphosphate → Glucose —6 phosphate + Adenosine Diphosphate. This step occurs whether glucose is being oxidized or being formed into glycogen, and it is catalyzed by hexokinase. Both *in vitro* and *in vivo,* it has been shown that APE inhibits hexokinase, and that insulin, by releasing this inhibition, allows normal phosphorylation. It has been further demonstrated (1) that insulin does not enhance the activity of uninhibited hexokinase, (2) that the conversion of glycogen into lactic acid is not influenced by APE, and (3) that rats made diabetic by alloxan yield tissue extract with the same hexokinase activity curves as those of rats previously injected with APE. The probable importance of these observations in explaining the mechanism of diabetes is obvious.

SURGERY

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Some of the highlights in surgery during 1945 are presented here. They include contributions from military surgery and from civilian experiences, as well as from researches in the broader fields of the basic sciences, by men closely associated with clinical work and the laboratory.

EARLY POSTOPERATIVE AMBULATION

Early ambulation, after operation, has been practiced for many years in certain hospitals in the aged, but only in recent years has it been applied to other patients. One of the reasons for interest in this method of handling patients is the stress of an increasing demand for hospital and nursing care, in the face of a shortage of both facilities at the close of the war. Another reason is that the use of non-absorbable suture material has been found to result in little or no lag-period in wound healing. It appears that fine steel wire, nylon, cotton, and silk cause so little reaction in sutured tissues that there is less evidence of the "weak stage" of the suture lines that occurs when catgut is used.

After surgical operations, particularly those in the pelvis and in the abdomen, venous return from the limbs is delayed, particularly in the aged and in the obese. While early rising of the patient has not significantly decreased postoperative thrombophlebitis, other circulatory disturbances are minimized and the incidence of chest complications is lowered. Other advantages of early walking have been suggested as follows: improved gastrointestinal function, with lessened incidence of abdominal distention; improved muscular strength and joint function, which lead to a more rapid resumption of full activity; improvement in morale; and economy in hospital beds and nursing care, and in the cost of illness to the patient. On the other side of the picture is the danger of increased wound infection and hernia-in-scar formation. It appears from these studies that in many instances the resumption of ambulation after operation can be hastened, in selected cases. Some of the advantages of early rising can be applied to patients not suitable for the program by giving leg and arm exercises in bed.

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CURARE IN ANESTHESIA

This South American Indian arrow poison, known since 1595, has been transformed into an anesthetists' tool. Curare action results in paralysis owing to interruption of the neuromuscular mechanism. Pharmacologists recently revived interest in this ancient drug, and now, finally a purified extract of curare is available, which exhibits true curare action without toxic side effects. This substance has a selective action, affecting first the muscles of the throat and neck, then the skeletal muscles of the extremities, the chest and the abdomen. It does not affect the heart.

This new curare was first employed in psychiatric patients, to soften the traumatic effects of convulsive metrazol and electric shock therapy. It has been used already in large series of patients without harmful effect. Next, it was tried on patients undergoing abdominal operations under cyclopropane-gas anesthesia. Curare works remarkably well in combination with cyclopropane to produce increased muscular relaxation. The chief advantage in curare lies in the fact that its use permits the employment of relatively non-toxic and readily controlled anesthetics and technics, for example, cyclopropane-gas. Overdosage may produce respiratory paralysis, and the drug must be used only by qualified expert anesthesiologists.

ALCOHOL

Interest has been revived in the use of intravenous alcohol in the surgical patient. Recommended in 1929 as an anesthetic agent, the popularity of alcohol was curtailed because of certain undesirable side reactions and complications. Various scientists renewed their interest in recent times in intravenous alcohol from the analgesic and caloric standpoint, and in the past year several papers appeared advocating its use. The Russians employed intravenous alcohol in 5 per cent glucose solution, in evacuation hospitals at the front, for the analgesic effect.

Alcohol, in surgical patients in this country, has been found to possess several advantages: (1) five per cent and 10 per cent alcohol intravenously increases the caloric intake and has special value in those cases with inanition; (2) it is a potent sedative and analgesic, and can be substituted for the opiates and other forms of sedation; (3) sedation is not attended with depressed respiration; (4) it may be used in cardiac patients with relative safety because of its vasodilatory effect and minimal effect on the blood pressure; (5) it has a definite place in regional anesthesia as a supplement during the operative procedure; (6) it has proved its value in alcoholic patients who can not be controlled with the usual doses of narcotics; and (7) the only complications noted are occasional transitory headaches, nausea and vomiting, and albumin in the urine, which disappears in a day or two. One additional virtue of alcohol narcosis is that it is inexpensive.

BLOOD AND BLOOD SUBSTITUTES

With particular reference to proteins, much has been accomplished in recent times in the study and treatment of nutritional deficiencies, particularly vitamin and protein deficiencies. The vitamin deficiencies were touched on in this series in 1943, and mention was made in the 1944 review of the problem of protein deficiencies in certain surgical conditions.

The correction of protein deficiencies is important in shock, in edema owing to low proteins, in wound healing, in immunity to infections, and in detoxification of poisonous substances. The methods of treatment now include the use of whole blood plasma and albumin for acute deficiencies, such as hemorrhagic shock; and protein hydrolysates, concentrates, and diets for the less acute, and for chronic conditions.

The war afforded ample opportunity to evaluate the usage of plasma infusions, in wounded and injured men. It was realized, after some experience with plasma, that it was not a physiological substitute for whole blood in the management of the wounded, but only a substitute for the purpose of restoring and maintaining blood volume until whole blood transfusions could be started. Plasma has come to be looked upon, therefore, only as a first aid measure for acute surgical measures, but not as a substitute for whole blood.

Specific indications for its use are found in the management of burns and in a few other conditions in which only the plasma is lost in the circulation. Dried plasma costs approximately one dollar per gram. The treatment, therefore, is expensive, and experience points to shifting to other and less expensive forms of proteins as soon as the emergency has ceased to exist. Intravenous protein hydrolysate feeding has been made possible by the recent development of solutions of pure amino acids. These are prepared by the acid hydrolysis of casein or enzymatic hydrolysis of casein. Five per cent solutions of glucose are administered with them. These protein hydrolysates for intravenous use represent a considerably more economic source of nitrogen than plasma.

Oral feedings are used to correct protein losses or other deficiencies whenever possible. Protein in the form of a digestive is now available for oral use, and several preparations of merit are being marketed. In their present forms, these digestives are not too palatable and must be given well disguised in milk chocolate and the like, or by intubation. Wherever possible, the best means to correct protein deficiencies is by high protein diet. Predigested protein is an adjuvant to such a diet only.

ADVANCES IN CHEMOTHERAPY

Advances in chemotherapy have had a far reaching effect on surgery. With the advent of the sulfonamides, then of penicillin, and now of other chemotherapeutic agents, one can not help being impressed by the radically altered outlook for patients with septicemia, meningitis, peritonitis, and pneumonia. Sulfadiazine continues to be the drug of choice for meningitis, principally because of its ready diffusion into the meninges, but it is becoming a common practice to combine it with penicillin in these serious infections.

PENICILLIN THERAPY

The ability of penicillin to deal with invasive staphylococcal and streptococcal infections has been amply demonstrated. Its use has in no way lessened the importance of other surgical measures, such as drainage of pus and removal of dead tissue, but in many instances, such as in the treatment of furuncles, it has minimized the extent of the surgery needed. Penicillin in war wounds has limited the spread of infection from the area of infliction, and has been a factor in reducing the number of deaths from sepsis. Aided and abetted by surgery, it has shortened the course, and helped to eradicate, local infections, when the organisms have been susceptible. It has been valuable in checking the spread of certain anaerobic infections, such as gas gangrene, but the evidence is still inconclusive as to how important a role penicillin does play. In tetanus, penicillin has not been outstandingly successful, and the use of antitoxin, together with appropriate surgical measures is still the most important treatment. Penicillin by nebulization seems to be of value in certain suppurative infections of the lung and in pre-operative preparations of patients for lobectomy.

The need for frequent injections in penicillin therapy has stimulated the search for other means of administering the drug. The repetition of three hourly injections often becomes a serious matter to the sick, weary, and nervous patient, interfering with sleep and sometimes going on to an obsession about needles. A number of solutions to this problem have been suggested, and some of them are already showing promise. The use of calcium penicillin in a beeswax-and-peanut oil emulsion has been shown to give effective levels of the drug for 24 hours following a single intramuscular injection. This single injection technic has already been found effective in the treatment of gonococcal urethritis, and its use probably will be extended to the treatment of other infections. Another approach has been the attempt to administer penicillin by mouth. The problem of penicillin destruction by gastric acidity has been met in part by the neutralization beforehand of the gastric secretions by the administration of alkalies. This approach has two disadvantages, unpredictable rate of absorbtion and destruction of some of the penicillin, since approximately three times the amount usually given by injection are needed to achieve therapeutic levels. The oral method of administration, if perfected, will be a boon to the patient, and to the busy physician.

Penicillin performs most dramatically in pure infections by sensitive organisms in which the blood supply to the infected area is adequate, and where there is no need for surgery. It is the most valuable chemotherapeutic adjuvant to surgery where the organisms are susceptible and easily approached. Most recent experiences, however, indicate that penicillin is of questionable benefit in the treatment of many infections in which there is a mixture of organisms. Gram-positive and gram-negative polymicrobic mixtures, acting in synergism or symbiosis, are able to multiply in the presence of dead tissue. In so doing they may produce local and/or systemic toxic effects. In addition, the products of their metabolism have the power of destroying penicillin; in fact, the inhibitors of penicillin are produced chiefly by bacteria. There are many different species which have the power of destroying penicillin, but the most numerous belong to the gram-negative non-sporulating rods, notably the Escherichia, Proteus, Pseudomonas, and Aerobacter groups. Many species in these groups destroy penicillin only to a certain degree, but unless very large doses are given, the antagonistic, destructive effect may be sufficient for the production and propagation of penicillin resistant species rather than the selective elimination of penicillin sensitive strains. Most chronic established infections are polymicrobic in character, and gram-negative bacteria are commonly present. They dominate the picture in retroperitoneal, peritoneal, lower extremity, and lung abscess infections. In addition, most gram-negative infections, such as those related to the colon, typhoid, Salmonella, Kleibsiella and Brucella groups, remain quite refractory to chemotherapeutic agents available heretofore.

STREPTOMYCIN

Streptomycin, an antibiotic agent produced by certain strains of Streptomyces griseus, first reported in 1944, is the result of an extensive search for an antibiotic agent that would be active against gram-negative bacteria and mycobacteria, be nontoxic to animals and be efficacious in vivo. It is produced from cultures of Streptomyces griseus by a series of extractions and purifications, and the pure crystalline base possesses an activity of about one unit per microgram. Streptomycin is active in vitro against gram-negative as well as certain gram-positive bacteria. It also exerts a marked bacteriostatic and bactericidal effect upon Mycobacterium tuberculosis, especially the human strains. It is not active against fungi.

Animal inoculation studies have established that the toxicity of Streptomycin is extremely low. Some lots produce an unfavorable histamine-like effect, but this seems to be owing to an impurity which probably will be eradicated with further experience in production. In vivo, Streptomycin has successfully controlled experimental infections owing to Salmonella schottmulleri, Pseudomonas aeruginosa, Proteus vulgaris, Shigella gallinarum, Brucella abortus, Klebsiella pneumoniae, Pasteurella tularensis, and Mycobacterium tuberculosis. Against the gram-positive Diplococcus pneumoniae and Staphylococcus aureus, protection was afforded by somewhat larger doses. Streptomycin has also protected against spirochaetal infections caused by Borrelia novyi and Leptospira icterohaemorrhagiae. It is not effective in suppressing avian malaria or in the control of the few virus diseases tried.

In human beings, Streptomycin is rapidly absorbed and excreted in the urine following parenteral administration. It is not absorbed appreciably from the intestine, nor is it destroyed there; in the gut it exerts a marked suppressive effect upon the microbial population. Therapeutic blood and urine levels are readily established and maintained, by intramuscular or intravenous injection. By the oral route of administration, Streptomycin does not readily enter the blood stream. Following the oral or parenteral administration of Streptomycin, no unfavorable effects have been encountered which could not be attributed largely to the presence of impurities in the preparations used.

To date, Streptomycin has been administered for infections of the urinary tract, typhoid, brucellosis, Klebsiella infections, tularemia, tuberculosis, and wounds. Although the results in some cases have been very encouraging, in others, such as brucellosis and tuberculosis, no definite conclusion may as yet be drawn. In view of the limited clinical data, a final evaluation of the therapeutic potentialities of Streptomycin is impossible at the present time.

FLUORESCEIN AS A DIAGNOSTIC AID

Fluorescein stain has been used over a period of a great many years in the eye to aid in detecting damage to the cornea when the eye has been accidentally injured. A year ago this dye found a new use. Given intravenously to patients with thermal burns of the body surface, the dye diffuses readily; and when the patients are viewed under ultraviolet light with a Wood's filter, the third degree burns appear to be black, while the second degree burns take on a yellowish green hue. This allows a more accurate diagnosis of burns and serves as a guide to later therapy. The use of Fluorescein has now been extended to determine the viability of strangulated intestine. The dye is given intravenously, and an ultraviolet light with a Wood's filter is employed to determine Fluorescein in the damaged bowel. The presence of Fluorescein usually is sufficient evidence of viability and permits return of damage loops of bowel to the abdominal cavity. The absence of Fluorescein is diagnostic of non-viability. This has been confirmed by microscopic sections. The evidence is accumulating that this relatively simple method removes the uncertainty from a diagnosis which heretofore has not been classified as exact.

THIOURACIL AND THYROTOXICOSIS

In the previous review (1944) the introduction of Thiouracil in the treatment of thyrotoxicosis was mentioned, and the early reports indicated that the drug showed promise in the preparation of the hyperthyroid patient for operation. Experience in the past year has brought additional support to the preliminary conclusions. One-stage thyroidectomy may be performed with minimal risk in a patient with severe hyperthyroidism, who has been adequately treated with thiouracil. Adequate preparation reduces the mortality rate and shortens hospital convalescence to seven or ten days. As thiouracil is toxic to about 11 per cent of patients, the greatest potential danger being granulocytopenia, frequent blood examinations and careful observation during the preparatory period are imperative. Doses of 0.2 gm. of thiouracil are given at 7 A.M., 2 P.M. and 9 P.M. daily until all hyperthyroid manifestations subside and the basal metabolism rate is normal. Approximately one day of treatment is necessary for each percentage point of elevation in the basal metabolism rate. Thiouracil is withdrawn the last week before operation. Surgeons experienced in its use now administer iodine (Lugol's solution) during the final three pre-operative weeks. This eliminates the difficulty of increased vascularity and friability which are the result of thiouracil administration without iodine.

WAR SURGERY

The war brought about progress and improvement in the management of the wounded patient and of the various types of war wounds. The problem of shock is now better understood, and the therapeutic value of whole blood and plasma in addition to recognized principles is generally appreciated (see, Blood and Blood Substitutes, *supra*). As concerns wound management, four well defined principles were early recognized and generally accepted. The first of these is the provision of adequate exposure of all of the wound by adequate incision. Second in importance is the removal of all devitalized tissue in the wound. The third principle upon which there is complete agreement is drainage, *i.e.*, leaving all war wounds open. The fourth and final principle is immobilization. Thus the experience in the war established well the dictum that wounds should be left open after their initial debridement. While this rule has been justified against infection, the inevitable consequence has been protracted convalescence and the formation of excessive scar tissue. Efforts to obviate these disadvantages have led to the development of a plan of wound management which constitutes, through its extensive application, a significant advance in military surgery.

This plan is based upon a concept of wound management that provides the early routine closure by suture of wounds left unsutured at the initial operation. The usual routine consists of complete initial operation with adjuvant chemotherapy, penicillin or the sulfonamides, and closure of the wound by suture usually at the time of the first dressing on or after the fourth day. The proper time for secondary closure by suture is determined by the gross appearance of the wound. If there is evidence of slight infection, appropriate measures are taken to clean up the wound prior to instituting a secondary closure, usually a few days later. If established infection is severe, the patient is given a course of specific and general support of therapy followed by surgical revision of the wound and staged closure. This practice has led to good healing in 90 to 95 per cent of thousands of the soft part wounds encountered under battle conditions. Healing has been accelerated, restoration of function hastened, and ultimate disability and deformity minimized by this plan of wound management. The plan in its final stage embraces reconstructive surgery, which now is being accomplished earlier than possible before.

In *neurosurgery*, a distinct advance was made during the war in the subsequent repair of skull defects with the use of tantalum plate. The most approved method of suturing nerves, at present, is with fine tantalum wire followed by wrapping the line of anastomosis with tantalum foil. The use of fibrin foam as a hemostatic agent, mentioned in the 1944 review, has been generally appreciated as a valuable aid in neurosurgical operative procedures. Probably the greatest advance in *thoracic surgery*, in this war, has been in the management of cases of massive clotting of blood in the pleural cavity, and of empyema. Massive clotting of blood in the pleural cavity occurs in about four to six per cent of cases with hemothorax, and is suspected when clinical findings persist after only small amounts of blood can be withdrawn, and serial roentgenograms show no improvement during the third to sixth weeks. Using penicillin therapy as an adjunct, early operation is done in these cases with removal of clots from the pleural cavity, and the dense layer of fibrin from the underlying lung, in order to permit rapid expansion of the lung and thus obliterate the cavity. Similarly, in post-traumatic empyema, if extensive collapse of the lung occurs early, surgical decortication is performed. The application of these surgical principles, and this shift of emphasis from local treatment of secondary pleural complications, to procurement of early and complete re-expansion of the lung, has provided a significant advance in the management of these serious injuries.

The local treatment of burns has finally resolved itself into the use of the pressure dressing applied over fine-mesh vaselined gauze. This pressure dressing method has proven eminently satisfactory in the Army. The use of a pressure dressing permits early skin grafting. This measure tends not only to check protein loss but converts large open wound surface on closed wounds. The systemic treatment has been clarified with particular emphasis on the large amounts of plasma needed to combat shock in the initial phase, and the employment of electrolytes to replace loss through exudation and the judicious use of chemotherapeutic agents to minimize or prevent infection.

STORAGE OF SKIN FOR AUTOGENOUS GRAFTS

Skin kept under refrigeration for as long as eight weeks may be used successfully for autogenous grafts. The procedure for the storage of the grafts is simple. The split thickness skin grafts are wrapped in gauze wrung out in saline solution and placed in a bottle on which an air-tight cap is screwed on. The bottle is placed in a refrigerator in which a temperature from 3 to 6°C. is maintained. The storage of skin grafts saves the patient with a large denuded area from a succession of operations, reduces the number of donor areas required in multiple-stage plastic repair of a healed wound, is particularly useful in the event of partial failure of an initial graft, and permits application of the graft at the optimum time as a bedside dressing.

THE PLASTIC CLOSURE OF BEDSORES (Decubiti)

Decubitus ulcers frequently do not heal because of associated malnutrition and other deficiencies, but even after anemia, reduced plasma protein, and avitaminosis have been corrected, a discouragingly long period is required before the lesion is filled in with granulation tissue. Pinch grafts over the denuded area tend to break down. A more effective treatment of large sacral bedsores, once the nutritional requirements have been supplied and the infection controlled, now comprises excision of the granulating area and plastic closure by means of sliding flaps. Sepsis in the tissues surrounding the ulcer and infection in the bladder or other foci is eradicated by systemic and local penicillin therapy. Penicillin is given before operation until a clean wound is obtained, and for a week or longer after operation. The entire ulcer area is exercised to normal surrounding tissue, and the top granulations from the ulcer base are cut away. The surrounding skin is undermined and the flaps are slid into place over the wound, then closed, without tension, with fine silk sutures. The patient does not lie on his back for a week after operation. After this period the sutures are removed, and in the majority of instances the wound remains healed. The advent of penicillin therapy has brought within the realm of surgery another manageable condition, previously difficult to treat.

PUBLIC HEALTH

By Ira V. Hiscock

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TRENDS AND OPPORTUNITIES

Changing challenges are indicated by a review of problems and services. Such a review recently showed that between 1900 and 1940, for the U. S. Registration Area, the death rates for typhoid and diarrhea and for diphtheria and other acute communicable diseases were reduced more than 90 per cent; for tuberculosis, 77 per cent; for pneumonia and influenza, 61 per cent. The mortality from all other causes than those mentioned fell only 16 per cent; today 27 per cent of all deaths are owing to diseases of the heart, 16 per cent to other conditions associated with the cardio-vascular-renal complex, and 11 per cent to cancer.

The birth rate rose slowly and irregularly for a few years after 1933, until 1939, then more rapidly, by some 27 per cent, through 1943. A slight decline in this trend, the drop in 1944, marriages and experience of the First World War suggest a decline is likely until the return of an appreciable number of the military forces.

The health of the American people, as reflected by the mortality record of many millions of Industrial policy holders of the Metropolitan Life Insurance Company, and by other data, safely weathered the hardships and dislocations of the war period. Cancer and heart disease show a general increase. Tuberculosis turned upward in some areas, but for the country as a whole reached the lowest rate ever reported in the United States in 1944.

The Surgeon General of the Public Health Service notes that there is yet much to be done. Some 15,000,000 people in rural communities are without physicians and hospitals; there are some 1,200 counties without basic public health services; the construction of small, well-equipped hospitals and health centers to serve rural communities is a particularly urgent need. The improvement of working conditions and health conservation among industrial workers is of concern to public health workers as well as to labor and management. Today, 38 state industrial hygiene services, most of them in health departments, may be contrasted with only five ten years ago; but, for expansion, organized labor and management must realize the values and give wholehearted support. The Army, the Navy, the Public Health Service, and the War Shipping Administration used modern psychiatry to cope with emotional shocks of war; such services need extension in community and state health programs.

Looking ahead, "the health officer must not be solely interested in syphilis and tuberculosis, or even in heart disease and cancer. He must, more and more, concern himself with nutrition in its subtle and complex influences upon vigor and efficiency and satisfaction. The absence of vitamins or iodine or fluorine in the diet of a community may seem as important as the presence of typhoid bacilli in its milk supply. He must concern himself with housing . . . with the living wage and with the provision of a due measure of social security, which is essential to both physiological and psychological health. . . . In other words, public health which in its earliest days was an engineering science and has now become also a medical science must expand until it is in addition a social science." (*Amer. J. P. H.,* Vol. 35, No. 3, March 1945, pp. 191-198, C.-E. A. Winslow, "Changing Challenges of Public Health"; *P. H. Reports,* Vol. 60, No. 17, April 27, 1945, Thomas Parran, "Over the Horizon in Public Health"; *Statistical Bul. Metropolitan Life Ins. Co.,* Vol. 26, No. 10, October 1945, pp. 1-3; *Amer. J. P. H.* Vol. 35, No. 4, April 1945, pp. 315-325, "Trends of the Birth Rate," Louis I. Dublin and A. W. Hedrich.)

AMENDED INTERNATIONAL SANITARY CONVENTIONS

The world conflict added to the danger of the spread of great pestilences by interfering with the effective administration of the existing international sanitary conventions. With this situation in mind, the Council of UNRRA, at its first session recommended that "governments and recognized national authorities cooperate fully with the Administration in establishing at the earliest possible date regional and other emergency agreements and arrangements for the notification within limits of military security, of diseases likely to become epidemic, uniformity in quarantine regulations, and for other measures of prevention." On Jan. 5, 1945, there were signed in Washington two sanitary conventions concerning maritime and aerial travel, amending the International Sanitary Convention signed at Paris in 1926 and the International Sanitary Convention for Aerial Navigation signed at The Hague on April

12, 1933. These Conventions, which came into force on Jan. 15, 1945, were framed in the light of the most recent advances in medical science and public health practice. (UNRRA Health Division, *Epidemiological Information Bulletin,* Jan. 15, 1945, Vol. 1, No. 1)

IMPORTATION OF DISEASE

While it is the consensus of experts in the field of tropical diseases that the risk of importation of these diseases into the United States is small, nevertheless, the Army is taking precautions to prevent their introduction. (*Amer. J. P. H.* Vol. 35, No. 6, June 1945, Lt. Col. Thomas G. Ward, "Control Measures Against Importation of Disease by Men Returning from Overseas Duty," pp. 572-574). For an authoritative report on measures in the control of communicable diseases, —official with the American Public Health Association, the U. S. Public Health Service, the U. S. Navy, and approved in principle by the Surgeon General, U. S. Army, see "The Control of Communicable Diseases" (*A.P.H.A.,* 1790 Broadway, N. Y., 1945, sixth ed., 149 pp.)

LEGISLATION

An unprecedented number of legislative proposals for the improvement and extension of existing health services and for establishment of medical care programs was introduced in Congress as well as in state legislatures in 1945.

The most important Congressional bills included the following: (1) the Hill-Burton bill (S. 191 and H.R. 2498) calling for construction of hospitals and related facilities at public expense, which was amended and favorably reported to the floor of the Senate on Oct. 27, 1945; (2) the Maternal and Child Welfare bill (S. 1318 and H.R. 3922, 3994, and 4059), proposing complete tax-supported health service, including medical care, for mothers during the maternity period and for children up to 21 years of age; (3) the National Institute of Dental Research bill (S. 190 and H.R. 3816) to promote research in dental diseases and conditions; (4) a bill for the development of dental health programs (S. 1099 and H.R. 3412, 3414); (5) the "National Neuro-psychiatric Institution" bill (S. 1160 and H.R. 2550) to promote research in mental diseases and conditions; (6) a bill to promote research in cancer and poliomyelitis (H.R. 3939); and (7) two Wagner-Murray-Dingell bills, one of May 24, 1945 (S. 1050 and H. R. 3293) and one of Oct. 29, 1945 (S. 1606 and H.R. 4730). The latter, introduced in connection with President Truman's message to Congress proposing a national health program (79th Congress, 1st Session, H.R., No. 380), would make provisions for the extension and improvement of selected community-wide health services (control of venereal diseases and tuberculosis, general public health services, maternal and child health services); for uniform medical care programs for the needy; and for introduction of "prepaid personal health service benefits" for the large majority of the American people. A Senate Joint Resolution on the formation of an international health organization was reported favorably out of committee (Sen. J. Resol. 89).

MEDICAL CARE

In January the Senate Subcommittee on Wartime Health and Education submitted a report describing unmet health needs and outlining a program designed to meet these needs (79th Congress, 2nd Session, Subcomm. Rep. No. 3).

Preparatory to the enactment of the hospital construction bill nearly half of the states had inventories of their hospital facilities under way or about to be started, and most of the others were in process of preparing surveys. The pilot survey in Michigan was nearing completion (American Hospital Association, Commission on Hospital Care, *Hospital Survey News Letter,* Sept. and Nov., 1945).

With the discharge of physicians and dentists from the Armed Services the shortage of professional personnel began to ease, but the lack of residential and office space prevented many physicians and dentists from taking up practice.

Requests for medical care at public expense continued to be received less frequently than in pre-war years, as a high degree of employment with ensuing increased family income and accumulated savings enabled many families to pay for their own care. Lately, however, an increase in applications for general assistance and medical care was observed in some of the larger cities.

Following the example of several other states, Maryland revised its medical care program for the needy. As of June 1, 1945 the State Department of Health has been made responsible for the administration of the services at the state level (Maryland State Dept. of Health, *Monthly Bulletin,* 16:43, July 1945).

The EMIC program was utilized by approximately 80 per cent of all eligible wives. Under this program more births were attended by physicians than in other population groups and considerably more births (nearly 90 per cent) took place in hospitals than is true for the population as a whole.

The medical care program for Veterans was reorganized. Considerable additional funds were provided by Congress for repair, improvement, and new construction of general, tuberculosis, and neuro-psychiatric hospitals and other facilities. Plans for cooperation between teaching institutions and Veterans' hospitals were in process of development *(J.A.M.A.* 129:1100-1102, Dec. 15, 1945).

The total expenditures of Federal, state, and local agencies for medical care of civilians in the fiscal year 1944-45 amounted to about $1,000,000,000. This figure includes capital expenditures for hospital construction as well as operating costs of services.

An analysis of public policy in providing, at public expense, facilities and services for the care of the sick, and a discussion of the problems of planning for medical care facilities, professional services, financing, and administration, are contained in a new book entitled *Public Medical Care* (Franz Goldmann, New York: Columbia Univ. Press, 1945, 226 pp., $2.75).

The Blue Cross plans, providing for hospitalization in return for prepayments, covered about 20,000,000 persons (American Hospital Association, Hospital Service Plan Commission, *Blue Cross Contract Guide,* Chicago, Nov. 1945).

Voluntary prepayment plans providing for surgical services for hospitalized persons or more complete medical care covered an estimated 4,000,000 to 5,000,000 persons. Coordination of such plans with Blue Cross Plans received growing attention (American Hospital Association, Hospital Service Plan Commission, *Non-Profit Medical Service Plans,* Chicago, Nov. 1945; Social Security Board, Prepayment Medical Care Organizations, Third Edition, 1945). The American Medical Association urged the development of voluntary rather than compulsory health insurance plans under the auspices of medical societies *(J. A. M. A.* 128:883, July 21, and 129:1207, Dec. 22, 1945).

ACCIDENTS

Recognizing the importance of accident prevention as an essential public health service, a committee of the American Public Health Association has outlined a plan for official health agencies with special reference to home accidents. Five state health organizations have active programs: New York, Minnesota, New Jersey, Illinois, and Kansas.

As a cause of death, accidents rank fifth in the United States, exceeded only by heart disease, cancer, cerebral hemorrhage, and nephritis. They are responsible for some 94,000 fatalities and an estimated 10,000,000 disabling injuries. Accidents in and about the home still take the lives of about 32,000 men, women, and children a year, and rank ninth among the causes of death. It is encouraging that leading organizations interested in home safety have taken steps to coordinate their efforts *(Amer. J. P. H.,* Vol. 35, No. 3, March, 1945, pp. 216-220; *Statistical Bul. Metropolitan Life Ins. Co.*, Vol. 26, No. 11, Nov. 1945, pp. 8-10).

HOUSING

A quantitative appraisal of substandard housing is a 1945 contribution of the Committee on the Hygiene of Housing of the American Public Health Association, providing a relatively simple and economical instrument, which can help in raising housing inspection to the level of scientific and effective administrative practice *(Amer. J. P. H.*, Vol. 35, No. 5, May 1945, pp. 511-513).

SCHOOL HEALTH

Health needs of school-age children and school health policies received considerable study in 1945 by many national agencies, and joint plans were formulated to improve conditions. One important step at the Federal level was the formation of a committee from the U. S. Office of Education, the Children's Bureau, and the Public Health Service, to plan cooperatively the activities of the Federal Government. For the state and local level, similar coordinating committees have been recommended. The National Committee on School Health Policies, formed in 1945 by the National Conference for Cooperation in Health Education, has prepared a constructive guide for all concerned with health in schools, integrating the viewpoints of many professional groups on the contributions which school programs can make to the health of children and communities (*School Life*, November 1945, "Health Needs of School-Age Children and Recommendations for Implementation," pp. 1-8; "Suggested School Health Policies—A Charter for School Health," Health Education Council, 10 Downing St., New York 14, p. 46, price 25 cents, October 1945).

GAMMA GLOBULIN FOR MEASLES

One of the great triumphs in public health has been the reduction of childhood diseases, especially diphtheria by immunization. The progress in practical immunization against measles has passed through stages, involving, successively, the use of convalescent serum, pooled normal adult serum, placental extract, and Fraction II of the gamma globulins which is 25 times as potent as plasma in its content of measles immune bodies. It has been shown that these gamma globulin antibodies are effective in the prevention or attenuation of measles, and their use "constitutes the safest and most effective agent available for the prophylaxis of measles" (Janeway). This material is now available to health officers. The American Red Cross made its stock of pooled human plasma available, and the commercial firms have provided the extracted gamma globulin at cost *(Amer. J. P. H.* Vol. 35, No. 7, July 1945, p. 732; *Science*, 101, 2612:51-56 Jan. 19, 1945; *J. A. M. A.*, 126, 11:674-680, Nov. 11, 1944).

AIR-BORNE INFECTION

The importance of the problem of atmospheric dissemination of disease germs (particularly viruses and certain bacteria) has been made clear by the Wellses and by Hart. The Wellses' work indicates a field of sanitary ventilation beyond the hospital (operating room and communicable disease ward) and strongly suggests that hazards in the school classroom may be sufficient to warrant also control measures. The use of either ultraviolet light or of aerosols may be efficient; the treatment of floors and furniture (or bedding) with absorptive materials has apparently proved of value in reducing atmospheric pollution (*Amer. J. P. H.* Vol. 35, No. 9, September 1945, James E. Perkins, "Evaluation of Methods to Control Airborne Infections," pp. 891-897; and Editorial, pp. 951-952).

PUBLIC HEALTH NURSING

For many years it has been recognized that a single generalized public health nursing service is the ultimate ideal for a community. Much progress has been made toward attainment of this goal in Honolulu and in several cities on the mainland. In many communities, the health department has contracted with the Visiting Nurse Association to perform certain routine duties (tuberculosis nursing in New Haven, child health nursing in Hartford, Conn., for example); in some cities (Dayton and Columbus, O., Oakland, Calif.) the health department and the V.N.A. formed a joint nursing staff; in some (New Orleans), the health department has taken over the fundamental bedside provision of bedside care in the home. In Seattle, the health department and the V.N.A. nursing services have been amalgamated (*Publ. Health Nurs.*, 37:294, June, 1945; *Amer. J. P. H.*, Vol. 35, No. 12, December 1945, pp. 1321-1333).

LOCAL HEALTH UNITS

A pattern has been prepared for the complete coverage of continental United States with reasonably adequate full-time local health units, which is in keeping with high editorial standards and does credit to the authors. This volume indicates how countrywide basic, minimum coverage can be secured through 1,200 local health units directed by full-time medical and public health trained administrative officers; each unit designed to serve a minimum of approximately 50,000 population (*Local Health Units for the Nation*—A Report by Haven Emerson, Chairman, Subcommittee on Local Health Units, Committee on Administrative Practice with the collaboration of Martha Luginbuhl, New York: The Commonwealth Fund, 1945, 333 pp., $1.25).

VOLUNTARY HEALTH AGENCIES

"The voluntary health movement has had its fullest flowering in the United States." These agencies have grown rapidly to number over 20,000, spending (exclusive of the Red Cross) some $50,000,000 a year, and enlisting support, as board and committee members, of 300,000 public-spirited citizens. A study of these agencies and of the problems involved has recently been completed with the support of a grant from the Rockefeller Foundation. A report of this inquiry, involving two years of field work, concludes that the voluntary health agencies represent a form of enterprise that is likely to have a permanent and valuable role in our civilization. Their functions are to survey needs and explore methods of meeting them, to demonstrate new promising procedures, to educate the public, to supplement the work of official agencies, to promote sound legislation, and to stimulate coordination. While finding much to praise, the authors point out gaps and weaknesses in a forceful manner, and urge that prompt attention be given to qualifications of board and staff members, to coordination of individual local agencies in order to further the health of the community as a whole, stressing the value of a health council, to periodic self-study and appraisals, pooling of fund-raising efforts, and to strengthening of the National Health Council (Gunn, Selskar M. and Platt, Philip S., *Voluntary Health Agencies: An Interpretive Study*, foreword by Louis I. Dublin, under the Auspices of the National Health Council, New York: The Ronald Press Company. $3.00).

DENTISTRY

By Houghton Holliday
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The year 1945 in dentistry was replete with commendations to dental officers for meritorious service with the armed forces, with problems pertaining to readjusting the returning dentists to civilian practice, with changes in dental education and in the dental schools, with dento-social legislation and with clinical research, particularly in the field of chemotherapy.

POST-WAR PLANS OF DENTAL OFFICERS

In order to anticipate the needs of dental officers and to be able to assist them in returning to civilian practice, the War Service Committee of the American Dental Association conducted a survey among all dentists serving with the armed forces regarding their post-war plans. Replies were received from 7,549, or about one third. A summary of the data taken from the returned questionnaires provides pertinent information about the desires of the dentists and about the probable distribution of dentists among the population for the next few years.

Ninety per cent will engage in private practice. Of those in private practice before entering the service, 62 per cent will return to their former communities, 22 per cent will seek locations in new communities, and 9 per cent are undecided about returning to their former locations. The small towns and the very large cities are less attractive than cities between 5,000 to 100,000 population.

About one fourth of the dental officers would like to become associated with a group of practitioners. This was particularly true among those who had gone into service directly following graduation without having engaged in private practice. Fifteen per cent expressed a desire to remain in the service after the end of the war. Nine per cent would accept full-time positions in industrial dentistry, and 17 per cent would accept part-time positions. Seven per cent would like teaching positions. Additional professional training was desired by 70 per cent of the dental officers.

It is evident that the vast majority desired to return to private practice. Now that the war is over and a considerable number have been released from service, many are discovering that there is neither office space nor equipment available. As a result, some of those who intended immediately to start practicing are taking postgraduate courses or are seeking salaried positions. At the same time recent graduates are being sent into service in order to make it possible for those eligible for discharge to be released.

G.I. BILL OF RIGHTS

As mentioned above, 70 per cent of the dental officers indicated a desire to have additional training, in the nature of refresher or postgraduate courses, before returning to private practice. Under the Servicemen's Readjustment Act (The G.I. Bill of Rights) financial aid is provided to each dental veteran for such a course.

The pre-dental training of many college students was terminated by the war. Under the provisions of the G.I. Bill, they now may receive financial assistance to resume their college work. Most of these men are eligible to receive substantial financial aid for a period of one year, plus an additional period equal to the time they were in active service on or after Sept. 16, 1940, exclusive of A.S.T.P. or Navy V-12 time.

PROPOSED FEDERAL AID TO DENTAL EDUCATION

The Committee on Education of the House of Representatives was instructed to make a study of the effect of the war on higher education and to formulate appropriate legislation to alleviate these effects. Thus for the first time those engaged in the field of education have been called upon by Congress to express their judgment as to their needs and the means by which, through legislation, such needs can be met. The Council on Dental Education was requested to provide relevant data which it had accumulated in its study of the schools touching on the needs of dental education viewed from the national standpoint. This the Council did under the headings of the divisions employed in its 1942-1943 survey of all dental schools in the United States, as follows: Admission, Plant and Equipment, Faculty, Organization and Administration, Library, Financial Management and Support, Clinical Teaching, Basic

Science Teaching, Research, Hospital Relationships.

On the basis of this data the Council further stated that Federal aid for dental education is desirable if it can be afforded without Federal control. Few of the schools are established on a secure and satisfactory financial basis, and a higher level of housing equipment, faculties, libraries, research and graduate offerings depends to a large extent upon better support. Also the Council recommended: (1) a system of undergraduate scholarships not exceeding $500 to any one student in one academic year, covering roughly one tenth of the total undergraduate enrollment; (2) a system of graduate teaching fellowships not to exceed $2,000 to one student in an academic year; (3) a subvention for the support and encouragement of research of $10,000 per annum to each approved dental school.

In submitting the data on Admissions, the Council referred incidentally to the predominance of applications from the large cities and the eastern part of the country and pointed out the desirability of attracting students from all sections and all groups of the population. The wording of the statement was perhaps unfortunate, for it was construed by some to advocate a discrimination against certain racial groups, and such a turmoil was raised over this supposed slight that it is doubtful if any serious attention has been given to the major recommendations of the Council.

BILL TO AID DENTAL RESEARCH AND ESTABLISH A NATIONAL INSTITUTE OF DENTAL RESEARCH

A bill authorizing the appropriation of one million dollars for the erection and equipment of a national institute of dental research and $730,000 annually for dental research was introduced by Senator James E. Murray of Montana. The research would be conducted with the direction of the Surgeon General of the U. S. Public Health Service as a part of the functions of the National Institute of Health at Bethesda, Maryland and at certain other private and public institutions. The dental research that is already being done by the Public Health Service and other agencies would be greatly increased and coordinated.

DENTAL SCHOOL ENROLLMENT AND GRADUATION

The total number of graduates of the 39 dental schools in the United States for the year is 3,212, the highest since 1924. This is owing to the accumulated effect of the wartime accelerated program in the schools. Under normal conditions, the number of graduates was about 1,800. With the end of the war, it is anticipated that practically all of the schools will go back to the conventional four-year course and that the number of graduates will gradually decrease until the full effect of the present low enrollment of freshmen is evident three or four years hence. The enrollment of freshmen during the year was less than half of what it was the previous year, and it is expected that the enrollment will be low for a number of years.

CHANGES IN DENTAL EDUCATION

The cause of dental education in the northwest section of the United States has been greatly enhanced by action of the legislature in the states of Oregon and Washington. In Oregon, the University of Oregon accepted title to the North Pacific Dental College and will place its operation on the University level. In Washington, more than $4,000,000 was appropriated for the erection, equipment, and maintenance of new schools of dentistry and medicine.

An exceptionally large number of dental schools had changes in their administrative heads during the year. Considerable feeling was engendered among some members of the dental profession as a result of the decision of Columbia University to integrate still further the training for the professions of dentistry and medicine and to have one faculty instead of two to administer all of the educational functions at the Columbia Presbyterian Hospital Medical Center. Though the dental school was recently rated as one of the very best in the country by the Council on Dental Education, political pressure has been brought to bear on the Council to suspend its approval of the school, though no visitation to the school has been made by representatives of the Council nor has any change been announced in the teaching program of the school.

DENTO-SOCIAL PROBLEMS

The American Dental Association has gone on record as opposing the latest Wagner-Murray-Dingill Health Insurance Bill on the grounds that health insurance would stifle progress and proficiency and result in a deterioration in the quality of service rendered to the public here as it has in Germany and England. The dental profession, through the American Dental Association, has endeavored to find a more satisfactory financing plan to meet dental care costs, particularly for the medium and low income groups. Though the prepayment principle in meeting hospital and medical care costs has been well established, there is not sufficient information to determine whether similar budgeting plans can be applied to dentistry. The Dental Association recommends and seeks government grants for experimental dental service to be inaugurated by dental societies on the state level. When actuarial data have been obtained, the monthly payment by the subscribers can be adjusted to make the prepayment plan self-sustaining.

It is advocated by the American Dental Association that a plan for budgeting the cost of dental service should (1) provide a dental service that will contribute substantially to a higher level of dental health for its members, (2) assure people in the medium and low income brackets of dental service without financial hardship, (3) provide adequate fees to the dental profession for their services and stabilize the income of the profession, and (4) preserve the private practice of dentistry.

Any discussion of dento-social problems must take into consideration dental personnel. Dr. Lon W. Money, in his study of dental personnel in the United States, points out several pertinent facts: (1) only in the past six years has the profession been able to increase its birth rate of new graduates to a point where it exceeds the annual rate of death and retirement; (2) distribution of dentists is spotty, and there are many areas, particularly rural ones distant from dental schools, that are without dentists to meet minimum standards of dental care; (3) the number of dental hygienists has not come close to matching the increase in the pubic's appreciation of the value of their services; and (4) the gross income of the commercial dental laboratories has increased from $15,000,000 in 1920 to an estimated $125,000,000 in 1944 with a comparable increase in the technical personnel.

With the return of the dentists from military service, the United States will soon have between 70,000 and 75,000 practitioners located largely in the large cities. These dentists will be supplemented by the services of 35,000 assistants, 3,000 hygienists, and perhaps 18,000 technicians. The public's appreciation of good dental health is increasing as is the demand for dental service. How is this increasing demand to be met with the limited personnel available? Some advocate extending the duties of the auxiliary personnel, permitting the hygienists, for example, to perform certain services, under supervision, that are now legally restricted to the dentist. Also, it is recommended that greater emphasis be placed on research, education, and prevention in an effort to discover the causes of dental ills and to establish educational and preventive measures to bring them under control, giving special attention to the needs of children. In an effort to increase the number of dentists, an active program of vocational guidance should be undertaken. Unquestionably large numbers of well-qualified students are overlooking the opportunities of the profession merely because they have not been brought to their attention.

USE OF ANTIBIOTICS IN DENTISTRY

In dentistry, the antibiotics, the sulfonamides, and penicillin have been established as a valuable addition to the traditional forms of therapy, but they are not the panacea for all dental infections that one might have expected from announcements when they first came into general use. The sulfonamides were first demonstrated to be of value in the treatment of hemolytic streptococcal infections. The indiscriminate use of this agent as soon as it was found safe to use in treating human infections, revealed that it was ineffective in various types of infections. Development of other sulpha compounds greatly reduced this number, but there was still a need for better methods of dealing with the surgical infections associated with dental war casualties. Previously discovered, penicillin was now developed and found to be especially active against staphylococcus, the most common organism causing surgical infections. Both the sulfonamides and penicillin have been tried in dealing with the various types of infections in the tissues of the mouth and teeth. Attempt to use them in the treatment of periodontal disease has not met with success; however, in the treatment of the large number of cases of acute Vincent's infection, encountered among the men in service, these antibiotics have proven to be of tremendous value in speedily reducing inflammation and pain. Penicillin has proved to be especially beneficial. The condition returns, however, if the customary prophylactic measures are not instituted shortly after the acute symtoms have subsided.

CARIES RESEARCH

Robert G. Kesel, Joseph F. O'Donnell, and Ernst R. Kirch, of the College of Dentistry and the College of Pharmacy of the University of Illinois, have presented a progress report on their study "Deamination of Amino Acids by the Human Oral Flora: Its Role in Dental Caries Immunity." They state that certain aciduric bacteria, particularly L. acidophilus, are missing from the mouths of patients who have no active caries. The saliva of these individuals does not readily convert glucose into acid. Viable L. acidophilus, inoculated into the saliva of such individuals, has disappeared when cultures were made six to eight hours later.

In an effort to find the cause for the elimination of these bacteria, they found that saliva inoculated into beef broth under certain conditions contained something that was bactericidal to L. acidophilus. Experiments proved this substance to be ammonia nitrogen. The question arises as to what provides the ammonia in these caries-free mouths. Preliminary experiments indicate that caries-immune individuals have enzyme systems capable of converting at least six amino acids into ammonia nitrogen. This study suggests that caries immunity may be owing to the continuous production of minute quantities of ammonia in the bacterial plaque resident on the tooth surface.

FIFTIETH ANNIVERSARY OF THE DISCOVERY OF X-RAYS

Dentists, along with physicians and scientists in general, took advantage of the date, Nov. 8, to commemorate the fiftieth anniversary of the discovery of the x-ray and to honor the discoverer, William Conrad Roentgen, on the centennial of his birth. Though the x-rays provide only one of many means at our disposal to arrive at a correct diagnosis, it is difficult to imagine how greatly progress in the profession would have been retarded without this discovery and the subsequent developments in its application.

VITAL STATISTICS

By HALBERT L. DUNN

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BIRTH RATE

The birth rate for the United States declined in 1944 from the wartime high reached in 1943. The crude birth rate for the United States in 1944, based on the estimated total population including armed forces overseas, was 20.2 per 1,000 population, or 6 per cent lower than the corresponding rate of 21.5 for 1943. In terms of numbers, there were 2,794,800 registered births in the United States in 1944, or 140,060 less than in 1943.

A decline in the birth rate in 1944 was not unexpected. Following its slow advance from 16.6 per 1,000 population in 1933 to 17.9 in 1940, the birth rate had climbed rapidly to 21.5 in 1943. Among the factors which have been named as contributing to the high rate for 1943 were the increase in the number of marriages following the passage of the Selective Service Act, the desire on the part of families to have a child before the father left for overseas military assignment, and a feeling of greater economic security induced by increased opportunities for employment. During 1943 and 1944, the number of men overseas was much larger than in 1942, a fact which accounts for a part of the decrease in the rate for 1944. The indications are that a further small decrease occurred in the birth rate in 1945. On the basis of provisional figures, it is estimated that there were about 2,740,000 registered births in the United States in 1945.

The crude birth rate varied by state of residence in 1944 from 18.6 per 1,000 estimated civilian population for New York to 32.1 for New Mexico. The rate for the District of Columbia was 19 per 1,000 estimated civilian population. In general the highest birth rates were recorded for residents of the East South Central and West South Central states and the lowest for residents of the Middle Atlantic and New England States.

INTERPRETATION OF THE BIRTH RATE

In the interpretation of the crude birth rates for the country as a whole for the war years, consideration must be given to the fact that a large number of men were with the armed forces overseas and could not have contributed to the birth rate in the United States. Consequently, the birth rates for the war years, based upon the total population of the country including members of the armed forces overseas, are less useful as measures of fertility than in former years. The crude birth rates for states, based upon the estimated civilian population are still less comparable with the corresponding rates for the pre-war years. Although birth rates computed in this way are unsatisfactory in some respects, they have the advantage, especially for interstate comparisons, of being relatively unaffected by the presence of large military establishments in certain areas of the country.

RACIAL DISTRIBUTION OF BIRTHS

The registered births in the United States in 1944 were distributed by race as follows: white, 2,454,700; Negro, 324,183; Indian, 10,541; Japanese, 2,889; Chinese, 1,291; and other non-white races, 1,196. Births of white infants made up 87.8 per cent of the total; those of Negro infants, 11.6 per cent; and those of the other non-white races, 0.6 per cent.

Of the white births, 2,362,290, or 96.2 per cent, were to native mothers; 90,890, or 3.7 per cent, to foreign-born mothers; and the remaining 1,520, or

0.1 per cent, to mothers of unreported nativity. The proportion of births to foreign-born mothers has diminished steadily in recent years as a result of restrictions on immigration and the consequent "aging" of the country's foreign-born population.

ANALYSIS OF HOSPITALIZATION AND ATTENDANCE

A further increase occurred in 1944 in the proportion of births occurring in hospitals. Of the registered births in 1944, 2,112,963, or 75.6 per cent, occurred in hospitals, as compared with 72.1 per cent in 1943. Additional 493,463 births were attended by physicians outside of hospitals. In all, 2,606,426, or 93.3 per cent, of the births in 1944 were attended by physicians. Of the remainder, 178,520 were attended by midwives and 9,854 by other or unspecified attendants.

A far smaller proportion of the non-white births than of the white births were attended by a physician. While 97.9 per cent of the white births were attended by a physician only 60.1 per cent of the non-white births were so attended. A large proportion of the non-white births, 39 per cent, were attended by midwives. The proportion of white births so attended was 1.9 per cent.

DEATH RATE

There were fewer deaths in the United States in 1944 than in 1943, the number recorded for the year being 1,411,338 as compared with 1,459,544 for 1943. The crude death rate for the United States in 1944 was 10.6 per 1,000 population, as compared with 10.9 for 1943. The numbers of deaths refer only to those occurring in the United States and do not include deaths among the armed forces overseas. Correspondingly, the rates are based on estimates of the population excluding members of the armed forces overseas.

The crude death rate varied by state of residence in 1944 from 8.2 per 1,000 total population for Arkansas and Utah to 13.7 for Vermont. In general, the lowest rates were found for residents of the West South Central and South Atlantic states and the highest for residents of the New England and Middle Atlantic States. Important among the factors to be taken into account in interpreting the differences among the death rates for the states are the differences in the age-sex-race composition of the populations of the states.

CAUSES OF DEATH

The 10 leading causes of death in the United States in 1944, with their respective death rates per 100,000 population, were: diseases of the heart, 315.4; cancer and other malignant tumors, 129.1; intracranial lesions of vascular origin, 93.7; nephritis, 69.2; pneumonia and influenza, 61.7; accidents excluding motor-vehicle accidents, 53.5; tuberculosis, 41.3; diabetes mellitus, 26.4; premature birth, 25; and motor-vehicle accidents, 18.3. Together, the 10 causes accounted for 78.3 per cent of the deaths in 1944. Premature birth and pneumonia and influenza were the principal causes of death in infancy. Accidents, excluding motor-vehicle accidents, were one of the most important causes of death among children and young adults, ranking second to pneumonia and influenza in the age group one to four years and taking first place in the age groups five to 14 and 15 to 24 years. Tuberculosis was the second leading cause of death in the last named group as well as in the age group 25 to 44 years. At the older ages, diseases of the heart, cancer, and intracranial lesions of vascular origin had the lead.

A comparison of the crude death rates for the 10 leading causes of death in 1944 with their corresponding values in 1942 (a year in which the crude death rate for all causes reached a record low) shows that the rate for each of the 10 leading causes was higher in 1944 than in 1942, with the exception of the rates for nephritis, tuberculosis (all forms), premature birth, and motor-vehicle accidents. However, the apparent increases in the death rate for all causes and in the rates for the diseases of the older ages, notably diseases of the heart and cancer, probably overstate any real increase in mortality risk. This is because the crude death rates for any of the war years are affected by the withdrawal from the continental population of large numbers of men of military age for duty with the armed forces overseas. In addition to the factor of physical selection, which left behind an accumulation of the poorer risks, the withdrawal of men at the younger ages where the death rate is low had the effect upon the remaining population of increasing the proportion of persons at the older ages where the death rate is high.

INFANT AND MATERNAL MORTALITY

The infant mortality rate for 1944 was 39.8 per 1,000 live births, 1.5 per cent lower than that of 40.4 for 1943. Of the 111,127 deaths of infants under one year of age in 1944, 90,607, or 81.5 per cent, were of white infants and 20,520 or 18.5 per cent, of non-white infants. The infant mortality rate for white infants in 1944 was 36.9 per 1,000 live births, as compared with 37.5 for 1943. The rate for non-white infants was 60.3 per 1,000 live births, as compared with 62.5 for 1943.

Maternal deaths numbered 6,369 in 1944, as compared with 7,197 in 1943. The maternal mortality rate in 1944 was 2.3 per 1,000 live births, 8.0 per cent lower than the rate of 2.5 for 1943. Both infant and maternal mortality rates for 1944 are the lowest ever recorded for the United States.

PUBLICATIONS

The following regular series of publications pertaining to vital statistics were issued during 1945 by the Bureau of the Census: *Vital Statistics of the United States, 1943,* Part I and Part II; *Weekly Mortality Index; The Registrar,* a monthly release; *Monthly Vital Statistics Bulletin; Current Mortality Analysis,* a monthly release; *Annual Summary of Motor Vehicle Accident Fatalities, 1943,* and *Quarterly Summaries of Motor Vehicle Accident Fatalities, 1944; Vital Statistics—Special Reports, National Summaries,* vol. 21, numbers 1-16, containing tables and analytical text on various topics in vital statistics for the United States, 1943; *Vital Statistics—Special Reports, State Summaries,* vol. 22, numbers 1-53, containing summaries of 1943 data for the United States, each state, Territory of Hawaii, Puerto Rico, and Virgin Islands; *Vital Statistics—Special Reports, Selected Studies,* vol. 23, numbers 1-6, containing special studies in the field of vital statistics.

COORDINATION OF VITAL RECORDS AND VITAL STATISTICS IN THE UNITED STATES

During 1945, the energies of the professional staff of the Vital Statistics Division of the U. S. Bureau of the Census were largely directed toward strengthening the registration system throughout the United States and working toward greater uniformity of procedures. To this end, a staff of consultants is maintained in the Vital Statistics Division of the Bureau to assist state registrars in planning and inaugurating improved methods and techniques.

An important factor in solving interstate registration problems is the Council on Vital Records and Vital Statistics which was organized in the fall of 1944. The voting membership of the Council is composed of registrars of states and independent registration areas, chosen on a regional basis, and its recommendations are subject to ratification by the designated state registration executives. Hence, it expresses the majority opinion of the states in dealing with registration problems of national interest. Regional meetings, committee activities, and cooperative field studies have enabled the Council to grapple with such basic registration problems as inaccuracies in birth and death certificates; incompleteness of registration and lack of proper safeguards against unwarranted disclosure of illegitimacy. Measures are being adopted which will eventually result

TABLE A

CRUDE BIRTH AND DEATH RATES, MATERNAL AND INFANT MORTALITY RATES, AND STILLBIRTH RATIOS: REGISTRATION STATES,[1] FOR SPECIFIED YEARS

(Births and deaths exclusive of stillbirths. Birth and death rates per 1,000 estimated population; maternal and infant mortality rates and stillbirth ratios per 1,000 live births)

Year	Crude Birth Rate	Crude Death Rate	Maternal Mortality Rate	Infant Mortality[2] Rate	Stillbirth Ratio
1944	[3]20.2	[4]10.6	2.3	39.8	27.0
1943	[3]21.5	[4]10.9	2.5	40.4	26.7
1942	[3]20.9	[4]10.4	2.6	40.4	28.2
1941	[3]18.9	[4]10.5	3.2	45.3	29.9
1940	[3]17.9	[4]10.7	3.8	47.0	31.3
1939	17.3	10.6	4.0	48.0	32.0
1938	17.6	10.6	4.4	51.0	32.1
1937	17.1	11.3	4.9	54.4	33.4
1936	16.7	11.6	5.7	57.1	34.4
1935	16.9	10.9	5.8	55.7	35.8
1934	17.2	11.1	5.9	60.1	36.2
1933	16.6	10.7	6.2	58.1	37.0
1932	17.4	10.9	6.3	57.6	37.8
1931	18.0	11.1	6.6	61.6	38.2
1930	18.9	11.3	6.7	64.6	39.2
1925	21.3	11.7	6.5	71.7	38.1
1920	23.7	13.0	8.0	85.8	—
1915	25.0	13.2	6.1	99.9	—
1910	—	14.7	—	—	—
1905	—	15.9	—	—	—
1900	—	17.2	—	—	—

[1] Include entire continental United States, beginning with 1933.
[2] Deaths under one year of age.
[3] Based on total population including armed forces overseas.
[4] Excludes armed forces overseas.

in more timely issuance of statistics, and greater consistency is being developed between vital statistics data published by the states and by the Federal Government.

REVISED INTERNATIONAL LIST OF CAUSES OF DEATH, AND JOINT CAUSE STUDY

The International Commission for the Decennial Revision of the International List of Causes of Death, at its last meeting held in Paris, France, in 1938, recommended that the United States establish a committee to study methods of selection of causes of death for statistical tabulations. Accordingly, a Committee on Joint Causes, under the chairmanship of Dr. Lowell J. Reed, was created early in 1945, at the request of the Department of State of the United States, with Dr. Halbert L. Dunn and Dr. Selwyn D. Collins as secretaries of mortality and morbidity codes, respectively. Its membership includes representatives from Canada, United States, League of Nations, and an adviser to the Committee from England. The Committee met for the first time in Washington, D. C., Dec. 10-12, 1945.

As a part of the Committee's program, a study is being made by the Bureau of the Census of results obtained from various methods of coding causes of death. Some 90,000 microfilm copies of death certificates are being used for this purpose, and are being coded by our present method of classification, by the English method of selection, and by various modifications of the two systems. In order to obtain as complete and comprehensive a view of the problem as possible, all causes on the death certificates will be coded. Also coded are the causes which do not enter the statistical tabulations resulting from the use of the existing

TABLE B

CRUDE DEATH RATES FOR SELECTED CAUSES: UNITED STATES, 1942–1944

(Exclusive of stillbirths. Rates per 100,000 estimated population. Numbers after causes of death are those of the detailed International List of Causes of Death, 1938 revision)

Line No.	Cause of Death	1944[1]	1943[1]	1942[1]
1	All causes........	1,064.7	1,089.5	1,035.5
2	Typhoid and paratyphoid fever........ 1, 2	0.4	0.5	0.6
3	Cerebrospinal (meningococcus) meningitis........ 6	2.1	2.2	0.7
4	Scarlet fever........ 8	0.3	0.3	0.3
5	Whooping cough........ 9	1.4	2.5	1.9
6	Diphtheria........ 10	0.9	0.9	1.0
7	Tuberculosis (all forms)........ 13–22	41.3	42.6	43.1
8	Tuberculosis of respiratory system, etc.*........ 13	38.3	39.1	39.6
9	Tuberculosis (other forms)........ 14–22	3.0	3.4	3.5
10	Dysentery........ 27	1.4	1.4	1.4
11	Malaria........ 28	0.4	0.5	0.6
12	Syphilis........ 30	11.3	12.1	12.2
13	Measles........ 35	1.5	1.0	1.0
14	Poliomyelitis, polioencephalitis (acute)........ 36	1.0	0.9	0.4
15	Cancer and other malignant tumors........ 45–55	129.1	124.5	122.1
16	Cancer of the digestive organs and peritoneum........ 46	58.8	57.1	55.9
17	Cancer of female genital organs........ 48, 49	16.7	16.2	15.7
18	Cancer of the breast........ 50	12.4	12.0	11.9
19	Cancer (other sites)........ 45, 47, 51–55	41.2	39.2	38.6
20	Acute rheumatic fever........ 58	1.1	1.1	1.1
21	Diabetes mellitus........ 61	26.4	27.1	25.4
22	Exophthalmic goiter........ 63b	2.0	2.1	2.2
23	Pellagra (except alcoholic)........ 69	0.8	1.0	1.1
24	Alcoholism (ethylism)........ 77	1.4	1.6	1.9
25	Intracranial lesions of vascular origin........ 83	93.7	95.0	90.2
26	Diseases of the heart........ 90–95	315.4	318.3	295.2
27	Chronic rheumatic diseases of the heart 90a, 92b, c, 93c, 95b	19.3	20.3	18.9
28	Diseases of coronary arteries and angina pectoris........ 94	93.9	90.1	84.9
29	Diseases of heart (other forms) .... 90b, 91, 92a, d, e, 93a, b, d, e, 95a, c	202.2	207.9	191.4
30	Pneumonia (all forms) and influenza........ 107–109, 33	61.7	67.3	55.7
31	Bronchopneumonia........ 107	23.2	25.8	22.9
32	Lobar pneumonia........ 108	20.5	23.2	20.5
33	Pneumonia (unspecified)........ 109	4.9	5.4	4.1
34	Influenza........ 33	13.1	12.9	8.1
35	Ulcer of stomach or duodenum........ 117	6.6	7.0	6.9
36	Diarrhea, enteritis, and ulceration of intestines........ 119, 120	9.9	9.6	8.8
37	Appendicitis........ 121	5.9	6.1	6.3
38	Hernia and intestinal obstruction........ 122	9.0	9.3	8.6
39	Cirrhosis of the liver........ 124	8.7	9.4	9.4
40	Biliary calculi, etc.*........ 126, 127	5.2	5.1	5.1
41	Nephritis........ 130–132	69.2	74.1	72.4
42	Diseases of the prostate........ 137	5.8	6.2	6.0
43	Diseases of pregnancy, childbirth, and the puerperium 140–150	4.8	5.4	5.4
44	Puerperal septicemia........ 140, 142a, 145A, 147	1.7	1.9	2.1
45	Puerperal toxemia........ 141a, c, 144, 148	1.2	1.4	1.4
46	Hemorrhage, trauma and shock* 141b, 142b, 143, 146, 149	1.4	1.5	1.5
47	Other puerperal causes........ 141d, e, f, 145B, 150	0.4	0.5	0.4
48	Congenital malformations........ 157	12.6	12.5	11.9
49	Premature birth........ 159	25.0	25.8	25.8
50	Suicide........ 163, 164	10.0	10.2	12.0
51	Homicide........ 165–168	4.9	5.0	5.8
52	Accidental deaths........ 169–195	71.8	73.9	71.7
53	Motor-vehicle accidents........ 170	18.3	17.8	21.2
54	Other accidents........ 169, 171–195	53.5	56.1	50.5
55	Senility, ill-defined and unknown causes........ 162, 199, 200	22.3	23.3	22.3
56	All other causes........	99.5	103.8	98.7

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* Refer to complete International List titles.

[1] Excludes armed forces overseas.

TABLE C

NUMBER OF DEATHS AND SPECIFIC RATES FOR THE FIVE LEADING CAUSES OF DEATH IN EACH AGE GROUP, BY RACE: UNITED STATES, 1944

(Exclusive of stillbirths and of armed forces overseas. Rates per 100,000 estimated population in a specified group)

Age and Cause of Death	Number			Rate		
	Total Deaths	White	Non-white	Total	White	Non-white
Under 1 year:						
All causes	111,127	90,607	20,520	4,332.0	4,001.3	6,820.2
Premature birth	33,120	27,904	5,216	1,291.1	1,232.3	1,733.6
Pneumonia (all forms) and influenza	15,674	11,696	3,978	611.0	516.5	1,322.2
Congenital malformations	14,205	13,249	956	553.7	585.1	317.7
Injury at birth	10,199	9,093	1,106	397.6	401.6	367.6
Diarrhea, enteritis, etc	9,239	7,352	1,887	360.2	324.7	627.2
Other causes	28,690	21,313	7,377	1,118.4	941.2	2,451.9
1–4 years:						
All causes	23,317	18,464	4,853	231.4	209.1	389.2
Pneumonia (all forms) and influenza	4,546	3,395	1,151	45.1	38.4	92.3
Accidents excluding motor-vehicle accidents	3,951	3,174	777	39.2	35.9	62.3
Diarrhea, enteritis, etc	1,503	1,075	428	14.9	12.2	34.3
Congenital malformations	1,168	1,054	114	11.6	11.9	9.1
Motor-vehicle accidents	1,108	992	116	11.0	11.2	9.3
Other causes	11,041	8,774	2,267	109.5	99.3	181.8
5–14 years:						
All causes	20,311	16,631	3,680	92.7	87.2	129.4
Accidents excluding motor-vehicle accidents	4,611	3,834	777	21.0	20.1	27.3
Motor-vehicle accidents	2,093	1,847	246	9.6	9.7	8.7
Pneumonia (all forms) and influenza	1,516	1,160	356	6.9	6.1	12.5
Diseases of the heart	1,344	1,080	264	6.1	5.7	9.3
Appendicitis	941	814	127	4.3	4.3	4.5
Other causes	9,806	7,896	1,910	44.7	41.4	67.2
15–24 years:						
All causes	42,876	32,766	10,110	201.4	174.4	403.5
Accidents excluding motor-vehicle accidents	10,189	9,189	1,000	47.9	48.9	39.9
Tuberculosis (all forms)	7,329	3,817	3,512	34.4	20.3	140.2
Motor-vehicle accidents	4,561	4,125	436	21.4	22.0	17.4
Diseases of the heart	2,824	2,277	547	13.3	12.1	21.8
Pneumonia (all forms) and influenza	1,814	1,280	534	8.5	6.8	21.3
Other causes	16,159	12,078	4,081	75.9	64.3	162.9
25–44 years:						
All causes	142,255	107,577	34,678	366.1	309.5	846.1
Diseases of the heart	22,881	17,951	4,930	58.9	51.6	120.3
Tuberculosis (all forms)	19,613	13,192	6,421	50.5	37.9	156.7
Cancer and other malignant tumors	15,749	13,384	2,365	40.5	38.5	57.7
Accidents excluding motor-vehicle accidents	12,601	10,847	1,754	32.4	31.2	42.8
Pneumonia (all forms) and influenza	7,013	4,803	2,210	18.0	13.8	53.9
Other causes	64,398	47,400	16,998	165.7	136.4	414.8
45–64 years:						
All causes	401,590	345,397	56,193	1,435.1	1,342.5	2,491.9
Diseases of the heart	131,694	116,404	15,290	470.6	452.4	678.0
Cancer and other malignant tumors	70,897	64,939	5,958	253.4	252.4	264.2
Intracranial lesions of vascular origin	35,532	28,233	7,299	127.0	109.7	323.7
Nephritis	25,580	19,408	6,172	91.4	75.4	273.7
Tuberculosis (all forms)	17,881	14,732	3,149	63.9	57.3	139.6
Other causes	120,006	101,681	18,325	428.9	395.2	812.6
65 years and over:						
All causes	668,453	626,492	41,961	6,780.7	6,809.1	6,384.0
Diseases of the heart	258,522	245,510	13,012	2,622.4	2,668.3	1,979.7
Intracranial lesions of vascular origin	82,683	76,645	6,038	838.7	833.0	918.6
Cancer and other malignant tumors	82,067	78,931	3,136	832.5	857.9	477.1
Nephritis	57,123	51,214	5,909	579.5	556.6	899.0
Pneumonia (all forms) and influenza	34,485	31,796	2,689	349.8	345.6	409.1
Other causes	153,573	142,396	11,177	1,557.8	1,547.6	1,700.5

systems for selection of the primary cause of death. It is anticipated that the study will be completed early in the summer of 1946. It is hoped that this study will solve many of the problems of joint-cause selection.

Since the establishment of the Committee on Joint Causes, a Budget Bureau Committee on Statistical Classification of Morbidity has been working on a morbidity code for use by Federal agencies. Its recommendations will be submitted to the Committee on Joint Causes.

COOPERATION WITH AMERICAN REPUBLICS

In 1942, as a part of the State Department Program for Cooperation with the American Republics, the Vital Statistics Division of the Bureau of the Census initiated a project to assist officials of the American Republics in the study and development of vital statistics and public health statistics. The project provides two types of assistance: (1) the detailing of technical experts to the American Republics to act in the capacity of consultants in the fields of vital statistics and public health statistics; (2) the awarding of intern training grants to selected candidates from the American Republics, to enable them to study the organization, methods, and procedures employed in vital statistics work in the United States. The program is designed to improve and standardize the vital statistics systems of the American Republics in accordance with resolutions adopted at a number of recent Pan American conferences, and particularly the resolutions of the Eleventh Pan American Sanitary Conference held at Rio de Janeiro in 1942.

The consulting program was started in 1942, since which time, projects have been initiated in Haiti, El Salvador, Paraguay, the Dominican Republic, and Colombia, in the order named. Most of the other countries of South and Central America and the Caribbean area have been visited for the purpose of making preliminary surveys and observations.

Since the initiation of the program, 12 intern training grants have been awarded to candidates from Latin American Countries, distributed as follows: Brazil, one; Chile, one; Colombia, one; Dominican Republic, three; Ecuador, one; Haiti, one; Panama, one; Paraguay, two; and Peru, one. Two of the candidates from the Dominican Republic were sent entirely at the expense of that government, which represents a substantial contribution to the program and indicates the enthusiasm with which it has been received. Of the total, five candidates (one each from Brazil, Chile, and Haiti, and two from Paraguay) have completed their training and returned to their respective countries, where they are now employed as vital statistics officials. The remaining candidates are in various stages of training.

PERIODICAL PUBLICATIONS

American Druggist
572 Madison Ave., New York City.
American Journal of Anatomy
36th Street and Woodland Ave., Philadelphia.
American Journal of Clinical Pathology
Mount Royal and Guilford Aves., Baltimore, Md.
American Journal of the Medical Sciences
600 Washington Sq., Philadelphia.
American Journal of Nursing
1790 Broadway, New York City.
American Journal of Obstetrics and Gynecology
3523 Pine Boulevard, St. Louis, Mo.
American Journal of Pathology
East University Ave., Ann Arbor, Mich.
American Journal of Pharmacy
Philadelphia College of Pharmacy and Science, Philadelphia.

American Journal of Public Health and the Nation's Health
1790 Broadway, New York City.
American Journal of Surgery
49 West 45th Street, New York City.
Anatomical Record
36th Street and Woodland Ave., Philadelphia.
Annals of Surgery
227 S. Sixth Street, Philadelphia.
Journal of the American College of Dentists
350 Post St., San Francisco, Calif.
Journal of the American Dental Association
222 East Superior Street, Chicago.
Journal of the American Institute of Homeopathy
1601 Chestnut St., Philadelphia, Pa.
Journal of the American Medical Association
535 N. Dearborn Street, Chicago.
Journal of the American Pharmaceutical Association
2215 Constitution Ave., Washington, D. C.
Journal of Bacteriology
Mount Royal and Guilford Aves., Baltimore, Md.
Journal of Bone and Joint Surgery
8 The Fenway, Boston.
Journal of Clinical Investigation
300 Longwood Ave., Boston.
Journal of Dental Research
1121 Michigan St., Indianapolis.
Journal of Experimental Medicine
York Ave. and 66th Street, New York City.
Journal of Infectious Diseases
5750 Ellis Ave., Chicago.
Journal of Nervous and Mental Disease
64 West 56th Street, New York City.
Journal of Pharmacology and Experimental Therapeutics
Mount Royal and Guilford Aves., Baltimore, Md.
Journal of Social Hygiene
1790 Broadway, New York City.
Medical Life
4 St. Luke's Place, New York City.
Medical Record
215 Fourth Ave., New York City.
Medical Review of Reviews
4 St. Luke's Place, New York City.
Medicine
Mount Royal and Guilford Aves., Baltimore Md.
N. Y. State Journal of Medicine
292 Madison Ave., New York City.
Radiology
607 Medical Arts Building, Syracuse, N. Y.
Surgery, Gynecology and Obstetrics
54 East Erie Street, Chicago.
Yale Journal of Biology and Medicine
333 Cedar St., New Haven, Conn.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

Academy of Medicine, 2 E. 103rd St., New York City.
Alliance Against Frauds, 36 W. 44th St., New York City.
Allied Dental Council, 145 W. 57th St., New York City.
American Academy of Applied Dental Science, 587 Fifth Ave., New York City.
American College of Surgeons, 40 E. Erie St., Chicago, Ill.
American Gynecological Society, 842 Park Ave., New York City.
American Heart Assn., Inc., 1790 Broadway, New York City.
American Institute of Homeopathy, 280 Madison Ave., New York City.
American Laryngological, Rhinological and Otological Society, Inc., 277 Alexander St., Rochester, N. Y.
American Medical Assn., 535 N. Dearborn St., Chicago, Ill.
American Public Health Association, 1790 Broadway, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

American Ophthalmological Society, 303 Whitney Ave., New Haven, Conn.

American Osteopathic Assn., 540 N. Michigan Ave., Chicago, Ill.

American Physiological Society, 19 W. Chase St., Baltimore.

American Society of Clinical Pathologists, 531 N. Main St., South Bend, Ind.

American Society for the Control of Cancer, Inc., 350 Madison Ave., New York City.

American Society of Tropical Medicine, Ohio State University College of Medicine, Columbus, Ohio.

American Veterinary Medical Assn., 600 S. Michigan Ave., Chicago, Ill.

Association of American Medical Colleges, 5 S. Wabash Ave., Chicago, Ill.

Association of Military Surgeons of the U. S., Army Medical Museum, Washington, D. C.

Association of Schools of Public Health, Johns Hopkins University, School of Public Health, Baltimore, Md.

Commonwealth Fund, 41 E. 57th St., New York City.

Edward L. Trudeau Foundation for Research and Teaching in Tuberculosis, Saranac Lake, N. Y.

John and Mary R. Markle Foundation, 14 Wall St., New York City.

Josiah Macy, Jr. Foundation, 565 Park Ave., New York City.

National Institute of Health, Bethesda, Md.

National League of Nursing Education, 1790 Broadway, New York City.

National Tuberculosis Assn., 1790 Broadway, New York City.

New York Academy of Sciences, 77th St. and Central Park West, New York City.

New York Health Department, Inc., 125 Worth St., New York City.

Osteopathic Assisting Service Bureau, 60 East 42nd St., New York City.

Public Health Relations Committee of New York Academy of Medicine, 2 E. 103rd St., New York City.

Rockefeller Foundation, 49 W. 49th St., New York City.

Society of American Bacteriologists, Agricultural Hall, University of Wisconsin, Madison, Wis.

Society of Medical Jurisprudence, New York Academy of Medicine, New York City.

Southern Medical Assn., 1020 Empire Bldg., Birmingham, Ala.

United Hospital Fund, 370 Lexington Ave., New York City.

W. K. Kellogg Foundation, Battle Creek, Mich.

DIVISION XXIV

PSYCHOLOGY AND PHILOSOPHY

PSYCHOLOGY

By WILBUR S. HULIN
PROFESSOR, PACIFIC UNIVERSITY

GENERAL

Texts.—There is a prevalence of practical books on psychology. T. L. Engle has written *Psychology, Principles and Applications* (World Book); K. S. Bernhardt's *Practical Psychology* (McGraw-Hill) deals with improved ways of thinking, getting along with others, and mental health; H. Beaumont's *Psychology of Personnel* (Longmans, Green) treats labor techniques; B. V. Cunningham's *Psychology for Nurses* (Appleton-Century) considers the nurse's own adjustment to her new environment; H. Deutsch's second volume on *Psychology of Women* (Grune & Stratton) is concerned with "motherhood."

Historical.—R. E. Brennan has written a *History of Psychology* (Macmillan) which describes the subject from the standpoint of the theology and philosophy of St. Thomas. V. Venable sketches a Marxian view of *Human Nature* (Knopf).

Schools.—In a symposium upon the subject of "operational definitions" (definitions stated in terms of the methods used to obtain facts), E. G. Boring warns that as soon as a phenomenon is defined operationally there is a need for similar operational definitions of antecedent and subsequent phenomena; P. W. Bridgeman adds that definitions of the cultural setting of the phenomenon must be included; and H. E. Isreal cautions that any such definition implicates all of human behavior (*Psych. Rev.,* Sept.). A rising school, called "Personalistic Psychology," is implicit in all of the schools, such as Gestalt and developmental psychology, which are based on the actions of the whole individual, according to E. B. Skaggs (*ibid.* Sept.).

Methods.—E. S. Tolman declares that the basic forces of man's mental activity are not the cultural forces but rather the individual processes of motivation and adjustment to conflict—processes which can be studied in rats as validly as they can be studied in man (*Science,* Feb.). O. T. Bailey asserts that the psychological study of animals and of human beings should be carried out at a different level of scientific research than is the study of anatomical reflex arcs and other neuroanatomical problems (*Philos. of Sci.,* Jan.).

POST-WAR

Rehabilitation.—A symposium on "Rehabilitation and the Returning Veteran" includes a description by W. R. G. Bender of the personal characteristics of the veteran; a résumé by E. L. Ginsberg of the process of readjustment and of the organized sources of aid to the veteran, such as are set up in New York City; and a statement by S. W. Ginsberg of the responsibilities of the community (*Ment. Hyg.,* Jan.). G. M. Gilbert previews the adjustment problems of returning veterans; he believes that the majority of maladjustment problems have their origin in the social environment of earlier life; war aggravated the conflicts of civilized living; a social program of mental hygiene will be needed as a remedy (*J. Abnormal & Soc. Psych.*, July). The special needs and problems of military women in readjusting to civilian life are assayed by P. Soloman and M. C. Winfield (*Amer. J. Orthopsychiat.*, July).

Peace.—Under the editorship of G. Murphy, a number of the members of the Society for the Psychological Study of Social Issues have contributed articles on *Human Nature and Enduring Peace* (Houghton Mifflin): what psychology can do and can not do in contributing to an adequate strategy against war is stated; the positive program includes abolition of class war at home and an expansion of democratic enlightenment. In a survey of the opinions of psychologists on peace planning, R. Stagner summarizes their beliefs in the statement that aggression (war) is the result of frustration rather than that there is an inherent aggressiveness in mankind; the main psychological proposal is to reduce ego frustrations and biological thwartings (*J. Psych.*, Jan.). E. A. Strecker expresses the faith that there is a feeling of sameness in all men which constitutes an "inner citadel of democracy" which should prevent humans from following the blandishments of future war propagandists (*J. Nerv. & Ment. Dis.*, May).

PERSONALITY

Influences.—R. Linton's book, *The Cultural Background of Personality* (Appleton-Century), confines its description of human personality to ordinary and distinctive events in specific social groups rather than to generalized ethnological considerations. To answer the question, "What is a normal personality?" F. J. Haeker specifies an adjustment between the inner laws of an individual's various drives and the social stimuli received from the outside world (*Amer. J. Orthopsychiat.*, Jan.). P. Mullahy asserts that personality is derived from the particular interpersonal relationships which an individual encounters and the interpersonal relations depend upon the particular social order which is their matrix (*Psychiat.*, May).

Components.—P. M. Symonds states that people differ from one another in intellectual capacity, individual adjustment, and in social adjustment; employment interviewers should take all three factors into consideration (*Personn. J.*, Feb.). P. A. Bertocci champions a "psychological self" concept which unifies the diverse functions of the personality; it does not have experimental value, but serves as a framework for the classification of empirical data regarding the personality (*Psych. Rev.*, March).

Tests.—A. L. Benten believes that the Minnesota Multiphasic Personality Inventory successfully identified psychopathic deviates with reasonable accuracy in a naval hospital (*J. Nerv. & Ment. Dis.*, Oct.). W. E. Jacobson has devised a useful scheme for measuring first impressions of people; use is made of a set of 49 concrete factors classified under the headings of physical traits, intelligence, clothing, grooming, and temperamental attitudes; college freshmen were predominantly favorable toward their classmates in using these traits (*J. Appl. Psych.*, Apr.). R. B. Cattell has plotted a chart portraying a system of nuclear clusters required for the description of the total personality (*Psych. Bul.*, March).

SENSATION

General.—Discussing "the natural history of experience," C. J. Herrick feels that the biologist may approach the psychological problem of experience from the genetic side, that is, through the increasing scale of sensitivity and discrimination of the animal series; this approach will lead to a proper evaluation of experience, on which science depends (*Philos. of Sci.*, Apr.).

Vision.—E. Murray insists that color blindness is inherited and can not be cured, as is sometimes alleged (*Amer. J. Psych.*, April). A wide variety of "psychometric problems in ophthalmology" has been discussed by

O. Lowenstein and others who emphasize the influence of the autonomic nervous system on the lens and iris of the pupil, especially during emotional states (*J. Clin. Psychopathol.*, Jan.). D. J. Lyle's *Neuro-Ophthalmology* (C. C. Thomas) deals with the relation of the eye to the brain. R. Granit employed micro-electrodes in a cat's retina and measured the changes to selective adaptation to red, blue, and green lights; the adapting color process suppresses sensitivity in its own spectral range and thus facilitates discovery of units stimulated by other parts of the spectrum; six or seven fundamental sensory points may exist rather than only three, as claimed in the old trichromatic theory (*J. Neurophysiol.*, May). Studying after-images in 200 school children, J. E. Morsh and H. D. Abbot have decided that there is no distinct phenomenon of eidetic imagery nor is there a continuum between ordinary retinal after-effects and memory images (*J. Comp. Psych.*, Feb.). Visual efficiency, as it refers to eye-strain and fatigue, can not be reliably measured by the frequency of blinking, as has been claimed by Luckiesh and Moss, according to M. E. Bitterman (*J. Exper. Psych.*, Aug.).

Audition.—R. F. Wyatt has demonstrated that with musical and non-musical subjects an improvement in pitch discrimination can be attained at various levels of the scale; an average of 30 per cent reduction in errors was gained by the 16 subjects (*Psych. Monog.*, No. 267). After a careful evaluation of the theories of sound conduction in the middle ear, P. Kellaway concludes that there is relatively only an "inertial" movement of the bones of the middle ear and that much of the sound conduction occurs through the compression of the skull cavities (*Amer. J. Psych.*, Jan.). J. C. Howard outlines the task of preparing hearing aids for the 250,000 war veterans who suffered impairment of hearing; some veterans have a uniform loss at all frequencies, others have either a high or a low impairment (*Nav. Med. Bul.*, March).

Touch.—Cutaneous sensations are greatly affected by autonomic nervous changes; for example, dilation of the arterioles and the activity of the sebaceous glands alter the touch qualities (*Psychosom. Med.*, March). B. S. Ray and H. G. Wolff believe that intense pain excitations spread through nervous connections in the spinal cord to other neural elements so that the pain sensations seem to be located widely over the body (*Arch. Neur. & Psychiat.*, April). W. P. Elhardt has noted a heightened sensibility to pain in certain emotional states despite the frequent obliviousness caused by the distraction of attention (*Fed. Proc. Amer. Soc. Exper. Biol.*, Feb.).

Vestibular.—Clinical observations of a patient deprived of his vestibular nerve demonstrated that a person can maintain stable posture despite loss of vestibular functioning; from measurements of normal subjects as well as from clinical subjects the conclusion is drawn that neither body sway nor positional nystagmus is a criterion of the equilibratory process (*J. Exper. Psych.*, April).

Perception.—V. Lowenfeld has designed an interesting method for determining the relative strength of a person's visual form perception and imagery and compared with his tactual perception and imagery; for example, a person tactually examines various cardboard geometric figures and identifies the touch perception by picking out the corresponding form from a set of visual figures (*Amer. J. Psych.*, Jan.).

AFFECTION

Emotion.—By injecting into rats the blood of emotional human beings changes were noted in the intestinal contractions of the rats; these changes resembled those resulting from injections of epinephrine or acetylcholine (*Arch. Neur. & Psychiat.*, Aug.). M. B. Arnold contends that the emotion, anger, results from a discharge of the parasympathetic nervous system, rather than of the sympathetic system which regulates the emotional pattern of fear (*Psych. Rev.*, Jan.).

Feeling.—E. L. Thorndike studied 12,000 words which have pleasant or unpleasant meanings, and found a correlation of plus .40 between these meanings and certain verbal sounds; the average of similar correlations for five different languages was plus .26 (*ibid.* May). P. Woodward appraised the relative effectiveness of various appeals in presenting a new and unfamiliar foodstuff, the soybean, in cafeteria menus; a decrease in consumption of the soya dishes came with appeals to "nutritional" values, but the greatest increase in consumption came with appeals to "American," "money," and "variety" (*Amer. J. Psych.*, July).

Aesthetics.—M. Beck indicates the cognitive character of aesthetic enjoyment: aesthetic experience, like religious experience, reveals basic realities (*J. Aesth. & Art. Crit.*, June). B. R. Philip ascertained the following color preferences in fashion: men select blue first, then black, and show least preference for brown and red; women also select blue most often, and other colors in about equal degrees (*J. Appl. Psych.*, April).

THOUGHT PROCESSES

Cognition.—R. W. Sellers characterizes our intellectual process of knowing truth and falsehood as depending on the "determinateness" of a sequence of ideas or experiences, and by the "incompatibility" between ideas (*Philos. & Phenomenol. Res.*, March). D. H. Parker supports the relatively greater realism of immediate experience—"knowledge by description"—over the inferential "knowledge by acquaintance" derived through judgment (*Philos. Rev.*, Jan.). E. Heidbreder stresses the dynamic nature of cognition (a type of mental process that is usually contrasted with dynamic action); thoughtful, rational processes are as influential upon motives and incentives as are emotions and drives (*Psych. Rev.*, Jan.).

Reasoning.—J. J. B. Morgan tested the logical insight of 300 college students by presenting a problem with the advance knowledge that there were but five possible solutions; 89 per cent of the students chose the correct solution; in other problems of similar character where no aid in the solution was given, 57 per cent of those who responded correctly to the first problem now responded with the same type of solution although it was now incorrect and illogical (*Amer. J. Psych.*, Jan.). The same author also demonstrated that the caution developed through the commission of logical errors will often promote the development of reasoning ability more than a uniformly successful accomplishment of correct logical moves (*J. Educ. Psych.*, Oct.). J. Hadamard portrays *The Psychology of Invention in the Mathematical Field* (Princeton Univ.).

Intelligence.—M. Sherman's *Intelligence and Its Deviations* (Ronald) correlates the medical, psychological, and social data on intelligence. Seventy-nine experts in the field of mental measurement were asked to give their suggestions about current testing procedures; 55 of the experts recommended an emphasis upon the testing of separate rather than general factors of intelligence; among other recommendations, 49 rated personality tests as unsatisfactory and 51 rated the Rorschach test as dubious (*Educ. & Psych. Meas.*, Spring). B. L. Wellman summarizes 50 articles on I. Q. tests of children during preschool years and reports an average increase of 14 points for pre-school children and an increase of 6 points for non-pre-school children (*J. Psych.*, Oct.).

ABNORMAL

General.—E. A. Strecker and K. E. Appel contrast the psychiatric concepts of the two world wars in their book, *Psychiatry in Modern Warfare* (Macmillan); the book gives special attention to the demobilized soldier. F. F. Hoffman appraises the influence of psychoanalysis on authors in *Freudianism and the Literary Mind* (Louisiana State Univ.). O. J. Kaplan discusses *Mental Disorders in Later Life* (Stanford Univ.). O. S. English and G. H. J. Pearson offer the medical doctor's viewpoint on *Emotional Problems of Living* (Norton).

Therapy.—The August-November issue of *Sociometry* brought together contributions of 40 authorities on "Group Psychotherapy"; group projection methods, group interview methods, and group discussions and testimonials are discussed. "Bibliotherapy" is important for psychotic patients, states J. M. Schneck, who urges that institutional libraries analyze the literature read by the inmates (*Psychiat.*, May). R. P. Knight asserts that psychoanalysis is only a special type of therapy which can not begin to cope with all of the growing demands of psychiatry (*Amer. J. Psychiat.*, May). A new type of therapy, called "electronarcosis," is used to treat schizophrenia; the treatment consists of a prolonged application of electric current to the brain causing a controlled state of unconsciousness preceded by a modified convulsion; the results are less effective than insulin therapy: E. B. Tietz and others (*ibid.*). There may be a great delay in the appearance of favorable effects of psychotherapy, reports J. C. Yaskin; the initial therapy, though repelled, may act as an inoculation (*J. Nerv. & Ment. Dis.*, June).

Special Conditions.—R. Seliger and V. Crawford offer a useful book of advice on alcoholism for both professional and lay readers: *Alcoholics Are Sick People* (Alcoholism Publ.). In migraine headache, the cranial arteries, especially the temporal artery, become distended, as measured by C. Torda and H. G. Wolff (*Arch. Neur. & Psychiat.*, May).

PHYSIOLOGICAL

Nervous System.—A new edition of A. Kuntz's book, *The Autonomic Nervous System* (Lea & Febiger), has appeared. A. R. Moore has designed an important outline of the basic steps of mental organization, beginning with the autonomous movements of protoplasm and continuing through the specialization of cells and the stages of aganglionic and ganglionic nerve organizations: *The Individual in Simpler Forms* (Univ. of Oregon). J. M. Rogoff declares that emotional responses are not directly related to adrenal gland secretions, because secretory functions do not act quickly enough nor show sufficient physiological utility to be a part of the emergency system of emotional response (*J. Gen. Psych.*, May).

Brain.—According to W. C. Halstead, brain injuries sometimes cause a loss in a general "power factor" or "vigilance factor" in the intellectual capacities; the result is a neurotic condition of hesitancy, indecision, and suspicion (*J. Psych.*, July). Similarly, A. Adler illustrates from 200 cases of brain injury that the most frequently occurring mental symptom (disregarding headache and dizziness) is that of anxiety (*Arch. Neur. & Psychiat.*, Jan.). The use of prefrontal lobotomy, *i.e.*, cutting off the front part of the cerebrum, is continuing to prove highly beneficial in cases of schizophrenia, often permitting complete social remission for the patient: W. Freeman & J. W. Watts (*Amer. J. Psychiat.*, May). A very comprehensive historical survey of findings on psychological changes in organic brain injuries and ablations has been gathered by S. G. Klebanoff who urges a more skillful use of mental tests in diagnosing patients (*Psych. Bul.*, Nov.).

Fatigue.—R. R. Grinker and J. P. Speigel have reported upon a psychological and physiological study of *Men under Stress* (Blakiston) based on war casualties hospitalized for "operational fatigue." S. H. Bartley and E. Chute classify the various conditions associated with fatigue as impairment, conflict, maladjustment, misalignment with a goal, and interpersonal incompatibility (*Psych. Rev.*, May).

ANIMAL

Habits.—P. T. Young has concluded that dietary habits become established according to their service in the ingestion of foods; the time pattern and the kind of nutrition are the main conditions to be stabilized; experiments with animals indicate that there may be several "partial hungers" for foods which the animal will continue to eat after it has become satiated with some other kind of food (*Comp. Psych. Monog.,* May). . In comparing habits of frogs and toads, A. N. Bragg has found that toads exhibit much greater acumen in their selection of appropriate foods; when in peril there are distinctive age and sex differences in the attitudes of defense: males make a "protest sound" whereas females remain silent (*J. Gen. Psych.,* Jan.). E. J. Farris and E. H. Yeakel found characteristic differences between the emotionality of 73 Norway rats and 73 albino rats (*J. Comp. Psych.,* April).

Receptors.—By treating the eyes of pigeons with various drugs in order to study the mechanism of accommodation, R. H. Gundlach and others concluded that the whole shape of the eye probably changes, most notably in the cornea, iris, and lens (*ibid.* Feb.). R. W. Sperry found that, after crossing the optic nerves in frogs, there was a recovery of coordination in about 22 days, but the eye-movements remain reversed (*J. Neurophysiol.,* Jan.). R. C. Noble's *The Nature of the Beast* (Doubleday, Doran) is a popular though factually correct account of animal behavior.

LEARNING

Habits.—O. H. Mowrer and H. Jones have examined the experimental findings of G. Humphrey, namely, that habits strengthened by intermittent rewards are better than are habits rewarded after every repetition; the explanation is given that intermittent reward permits the development of secondary, psychogenic drives, such as "hope" or "faith," which reenforce the primary, viscerogenetic drives (*J. Exper. Psych.,* Aug.).

Memory.—D. S. Mackay evaluates "memory" as illusory, and presses for greater dependence upon the present in the pursuit of security rather than on the past; memories are the apparent existence of something which we know to be non-existent (*Philos. Rev.,* July).

Conditioning.—Trace conditioned responses can be extinguished better by massed extinction trials (*i.e.,* with no reenforcement by the natural stimulus) than by distributed trials unless the conditioning series is massed: B. Reynolds (*J. Exper. Psych.,* Apr.). A. U. Moore and F. L. Marcus studied the learning abilities of two sows; salivary conditioned responses were established using food and a clicking metronome as stimuli; conditioned lid reflexes and also increased speed of heartbeat were established (*J. Comp. Psych.,* Feb.). In trial-and-error learning there is, according to W. R. Ashby, a physiological self-organization by the nervous system which leads to adaptive behavior; the appearance of a problem means a break in the organism's adaptation (*J. Gen. Psych.,* Jan.).

Reading.—J. E. Bell believes that much of the success in remedial reading techniques is owing to an improved emotional state in the retarded reader (*J. Consult. Psych.,* May). V. Lannert and M. Ullman have made a useful compilation of the many factors involved in the reading of piano music; a list of rules is also given; for example: "Try to read more rapidly than you play" (*Amer. J. Psych.,* Jan.).

CHILDREN

Books.—L. Carmichael has edited a *Manual of Child Psychology* (Wiley) which represents a large compendium of facts, theories, and techniques on the development of the child; the volume has a wide application at a fairly technical level. F. Goodenough has a revised edition of her *Developmental Psychology* (Appleton-Century). P. H. Landis, in *Adolescence and Youth* (McGraw-Hill), emphasizes the situational, environmental treatment of young people, rather than an analysis of internal mechanisms.

Adjustment.—E. R. Geleerd believes that, to deal with children's temper tantrums by means of firm and consistent though kindly treatment, is right for those children who have matured beyond a very infantile level, but for the child who is still an infant emotionally the most important phase of treatment is to give the child a feeling of assurance and of continued affective security which may be destroyed by appeals to reason (*Amer. J. Orthopsychiat.,* April). A. L. Baldwin, J. Kalhorn, and F. H. Breese find that children from democratic homes are better adjusted socially than are children from indulgent homes; distinctive patterns of parent behavior can be depicted especially between parents who reject their children, those who are casual toward their children, and those who accept their children (*Psych. Monog.,* No. 268). M. Bentley characterizes the growth function of the teens as being "reconstructive," and the twenties as being "stabilizing" (*Amer. J. Psych.,* July).

Tests.—From measurements on the Bell Adjustment Scale, the Guilford Inventory, and other scales, M. P. Wittman and A. V. Huffman reveal distinctions between normal children, psychotic children, and delinquent boys and girls; the effects of early home environment can be demonstrated by these measurements (*J. Genet. Psych.,* June). D. T. Tyler reports that the scores obtained on the Home Adjustment and Emotional Adjustment items of the *Bell Adjustment Inventory* are, for "only" children, more favorable than for siblings (*J. Educ. Psych.,* May).

SOCIAL

General.—E. Faris reviews the beginning of social psychology and its subsequent course during the past 50 years (*Amer. J. Sociol.,* May). R. West's book, *Conscience and Society* (Emerson), considers the psychological prerequisites of law and order. C. A. Ellwood places "the psychological basis of culture" on collective processes of learning and imagination; individual mentality must be improved in order to attain an improved general culture (*Sociol. & Soc. Res.,* July). G. H. Seward integrates the biological and social approaches to the subject of *Sex and the Social Order* (McGraw-Hill). T. Reik's *Psychology of Sex Relations* (Farrar & Rinehart) catalogues the present-day variations of Freud's theories. A. Kardiner, R. Linton, C. DuBois, and J. West, in *The Psychological Frontiers of Society* (Columbia Univ.), create a fusion of psychiatric and anthropological explanations of group phenomena.

Controls.—K. Menninger describes the necessity of educating traffic police in the facts of psychology, such as in the difference between the intelligence of drivers, so that policemen can exert authority without bullying (*Bul. Menninger Clin.,* Jan.). R. Corsini, in evaluating the therapeutic treatment of prison inmates, suspects that "some bright day prisons may have more psychologists than keepers" (*J. Consult. Psych.,* March). D. Abrahamsen makes a plea for an increased use of psychoanalytic therapy in social casework in order to solve the social problems which often lead to crime; the author points out that an individual's whole environment, social and natural, contributes to his state of adjustment (*J. Nerv. & Ment. Dis.,* July).

Attitudes.—F. H. Allport and M. Lepkin dissected the public's impulses to believe wartime rumors about waste and special privilege and found the greatest credulity occurring in circumstances of greatest deprivation and inconvenience (*J. Abn. & Soc. Psych.,* Jan.). A. M. Lee's clinical analysis of propaganda brings out a picture of the personality of the propagandist himself who tries to bring out his own good points while the opposition tries to bring out his bad points (*Amer. J. Sociol.,* Sept.).

Education.—Textbooks include J. B. Stroud's *Psychology in Education* (Longmans, Green), A. D. Woodruff's *Psychology of Teaching* (Longmans, Green), and C. E. Skinner's *Elementary Educational Psychology* (Prentice-Hall). American high schools, though developed in a democratic tradition, reveal the emergence of certain class distinctions; for example, H. P. Smith has found that in 28 out of 31 extra-curricular clubs the students possessed an average socio-economic status which was significantly higher than that of the total student body (*J. Educ. Psych.,* April). C. P. Ingram and others urge a greatly increased program of special education for mentally handicapped children (*Amer. J. Ment. Deficiency,* Jan.).

Race.—In a symposium on Race Relations, S. Mekeel describes certain constructive cultural aids, such as emphasis on inevitable class (rather than radial) distinctions like those that appear even in Soviet Russia; R. L. Cooper describes the urgency of a "leadership approach" to promotion of race equality to overcome the inertia of the general public; H. C. Oppenheimer cites instances in which the hospital ward has been an influential medium for social equalization (*Ment. Hyg.,* April).

INDUSTRIAL

Prospects.—Comparing "academic" and "professional" psychology, A. T. Poffenberger predicts "thrilling times" for applied psychology; the continuation of a central office as was set up in Washington, D. C. during the war will be needed for coordinating the new demands for psychological services (*J. Consult. Psych.,* Jan.). H. D. Kitson has compiled a helpful list of publications and pamphlets describing various occupations (*Occup.,* July). In W. J. Reilly's book on *The Law of Intelligent Action Applied in Business Relations* (Harper), an analysis is made into the desires, abilities, and capacities required for handling human relations.

Skills.—W. R. Miles, discussing psychological aspects of military aviation, points out various techniques of flying which will be important for peacetime navigation; there are also important psychological techniques which will be useful in the selection and training of flyers, as well as for the protection and maintenance of traffic; a meaningful "patter" for instructors has been devised from an examination of the trainee's mental processes during instruction (*Amer. Scientist,* July). F. S. Endicott lists the personal qualities of prospective employees (especially college graduates) desired by 70 corporations who submitted answers to a questionnaire (*Publ. Person. Rev.,* April).

Personnel.—J. E. Walter's book on *Personnel Relations* (Ronald) portrays the significance of these relations in a democracy as they function in government regulations and in labor-management cooperation. N. Cantor's *Employee Counselling* (McGraw-Hill) presents case studies to illustrate the role of the factory as a social system. Rules to be used by industrial management for stimulating favorable motives in workers are set forth by G. M. Wilson and others (*Personn. J.,* Oct.). There are now 350 positions in employee counseling in the Federal department services, according to M. E. Barron's report on the emerging role of public employee counseling since 1938 (*Publ. Person. Rev.,* Feb.).

PHILOSOPHY

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GENERAL

The war continued during 1945 to curtail literary production in Philosophy as in other fields. The absence of some of the younger philosophers in the armed forces and the increased teaching load of those remaining at home, together with other wartime duties, were largely responsible for this. The shortage of paper, besides reducing the output of new works, also handicapped teachers and students by causing standard works to go out of print.

NATURALISM AND DEMOCRACY

Probably the most significant concern of Philosophy during the war years has been the conflict over naturalism. The issues debated are important not only for theoretical philosophy but for the practical affairs of morals, politics, and education. Theologians, scientists, and literary men as well as philosophers have taken part.

One of the important documents on the naturalist side, *Naturalism and the Human Spirit,* edited by Yervant H. Krikorian (New York, Columbia Univ. Press), appeared in the latter part of 1944. It is a collection of 15 essays by John Dewey, S. P. Lamprecht, Sidney Hook, and others, beginning with Dewey's vigorous defense of naturalism against recent attacks ("Antinaturalism in Extremis") and ending with a brilliant general statement of the naturalist position, based on the preceding essays, by J. H. Randall, Jr. ("Epilogue: The Nature of Naturalism"). In between are papers on religion, democracy, ethics, logic, and a variety of other matters.

It is clear from this volume that the primary postulates of the naturalism represented by its authors are assertions about the sources of knowledge and the methods of attaining it. Nature is taken as the all-embracing category, including man with his mind, his culture, and his moral, religious, and aesthetic interests. All dualisms, whether of the natural and the supernatural or of mind and nature, which require discontinuity in analysis and the use of radically different methods for the discovery of truth about diverse subject-matters, are rejected. The empirical, experimental methods developed in the natural sciences are applicable to all subject-matters, including distinctively human activities, and are the only methods capable of yielding truth. Supernatural or transcendental causes, allegedly discovered by nonempirical methods, are ruled out; all explanation is in terms of natural causes discoverable by the methods used in the sciences.

Although naturalism is distinguished from other philosophies primarily by its methodological principles, naturalists are united also in denying the existence of a supernatural or transcendental realm of being, a transcendent God, and a substantial, immortal soul. Some, however, have stated explicitly that the denial is not arbitrary or *a priori* but is based on the fact that there is no empirical evidence to warrant belief in their existence; and this probably represents the general opinion among naturalists.

They are equally opposed, however, to that sort of materialism which tries to reduce everything to the mechanical motions of matter and makes mind a mere epiphenomenon. Reality is not denied to any of the traits which things are empirically discovered to have and which distinguish various subject-matters from each other. The enlarging and deepening of scientific methods, especially through the development of biological, psychological, and social sciences, have made such methods adequate to the investigation of all subject-matters without the necessity of reductionism.

CONTROVERSIAL DISCUSSION OF NATURALISM

Prof. W. H. Sheldon of Yale ("Critique of Naturalism," *Journal of Philosophy,* XLII, 1945, pp. 253-270) contends that the naturalism represented in this symposium is just materialism—not, perhaps, in the sense of claiming that all events are logically reducible to spatio-temporal redistributions of bodies, but in the sense of claiming that all control is exercised through such redistributions and that mental or spiritual states and processes exercise no control over the physical. Furthermore, the scientific method advocated by the naturalists is that of the purely physical sciences, which involves public verifiability and thus rules out from the start any private mental events, mystical experiences, etc. Hence, the possibility of the supernatural is rejected *a priori,* but the majority of philosophers believe that there are other ways of reaching truth, and the naturalists' assumption that the scientific method is the only one is purely arbitrary.

Dewey, Hook, and Nagel ("Are

Naturalists Materialists?" *Journal of Philosophy,* XLII, 515-530) reply to Sheldon that they are certainly not reductionists but that they are materialists in the sense of maintaining that minds are adjectival and adverbial of bodies, that there are no independent, substantial minds or souls capable of exercising control over the physical, and that all control is through the manipulation of embodied things. Men do have private experiences, even mystic experiences of the "Divine," but the mere having of experiences does not constitute knowledge. Moreover, what is not publicly observable may be publicly verifiable. Only A experiences A's pain, but others can verify that he has it.

Further papers by Sheldon and Randall are promised in this discussion.

It was noted above that the discussion of naturalism has not been purely academic. Since the beginning of the war and before, naturalism, materialism, and positivism have been strongly attacked as the cause of many of the evils of modern civilization. They are charged with partial responsibility for the breakdown of moral standards and the rise of totalitarianisms. Democracy, it is said, arose out of the Graeco-Roman and Judaeo-Christian traditions, and its preservation depends upon adherence to those traditions. The dignity and worth of man can be maintained only if man has a rational or spiritual nature. Materialism reduces man to a mere animal or a physical mechanism with no peculiar value of his own, and hence has no rational argument against those who wish to use other men as means to their own ends or to liquidate those whom they can not so use. A just social order is possible only if there are absolute and eternal moral laws, grounded in the will of God or the ultimate nature of the universe and disclosed to man through divine revelation or by a supersensible faculty of reason or intuition. The empirical methods of science can not yield such fixed and certain truths, but without such truths moral judgments are subjective and relative, and disagreements in morals are only clashes of varying likes and dislikes which can not be settled rationally. With regard to democracy, it is held that there is no brotherhood of men without the fatherhood of God.

The naturalists have replied that they are not materialists in the popular sense of recognizing only "material" values as opposed to "spiritual" ones. Neither are they reductive materialists. They do not maintain that man is nothing but a brute or a collection of atoms. Man has whatever traits he is discovered by observation to have. His dignity and worth, moreover, can not rest on the hypothetical ascription to him of an immortal soul or a mind which is a non-corporeal substance. Moral values and principles, the dignity and worth of man, have their foundation in human nature and in the connections of human beings with one another in a natural environment. Such values and principles are discoverable by the natural scientific methods of observation, experimentation, and verification. Anti-naturalist philosophies, in their search for supernatural goods and truths superior to those of natural science, neglect natural human goods and the discovery of the natural conditions upon which the attainment of such goods depends. The scientific methods of public verification, moreover, are the only ones suitable for a democracy, for they are the only ones through which intelligent agreement can be reached. The supposed other methods of attaining truth lead to rival absolutisms between which no rational decision is possible. Fascism and Nazism and other modern totalitarianisms are owing, not to the adoption, but to the rejection of scientific method in favor of authoritarianism.

The most immediate practical concern in the conflict of naturalists and anti-naturalists is education. The anti-naturalists maintain that the chief business of the schools is to pass on to new generations the truths embodied in our scientific, philosophical, and religious traditions. The naturalists believe that the schools should be chiefly concerned, not with handing down a body of fixed truths, but with teaching pupils to adopt the scientific attitude of open-minded, empirical, non-dogmatic investigation.

It is to be noted that some scientists, apparently less enamored of scientific method than the naturalistic philosophers, have been among those insisting upon a re-affirmation of the Judaeo-Christian tradition.

Some of those who are not in complete agreement with the naturalists have expressed accord with them in certain fundamental respects. Arthur E. Murphy, in a review of "Naturalism and the Human Spirit" (*Journal of Philosophy,* XLII, 400-417), agrees that there should be complete freedom for rational inquiry in all fields, including the solution of human problems; and he mentions Blanshard and Brightman as idealists who support the unrestricted use of reason. Blanshard, in a paper on "Theology and the Value of the Individual" (in *The Scientific Spirit and Democratic Faith,* Papers from the Conference on the Scientific Spirit and Democratic Faith, 1943, New York, King's Crown Press, 1944), argues strongly against the theological doctrine that the infinite value of the individual rests on his possession of an immortal soul and asserts in conclusion: "The infinite value of the individual must be defined, if at all, in verifiable human terms. To include in it weights and destinies of an imponderable theological kind may lead in the future, as it has too often led in the past, to the destruction of human good."

CONFERENCES

The Conference on Science, Philosophy, and Religion in Their Relation to the Democratic Way of Life, which has held annual meetings since 1940, although it includes representatives of various points of view, has, on the whole, been dominated by the opponents of naturalism. Its most recent volume, containing the papers of the fifth symposium, has the title: *Approaches to National Unity* (New York, Harper, 1945).

The Conference on the Scientific Spirit and Democratic Faith, which held its first meeting in 1943, is sponsored by naturalists and humanists, including philosophers like Murphy and Blanshard, and scientists, educators, and others who would not subscribe to all of the naturalistic philosophy. The papers of its second meeting (1944) have been published under the title: *The Authoritarian Attempt to Capture Education* (New York, King's Crown Press, 1945).

THE FUNCTION OF PHILOSOPHY IN EDUCATION

Some time ago the American Philosophical Association set up a Commission on the Function of Philosophy in American Education, with Professors Brand Blanshard, Curt J. Ducasse, Charles W. Hendel, Arthur E. Murphy, and Max C. Otto as members. The report of this Commission, *Philosophy in American Education: Its Tasks and Opportunities,* appeared late in 1945 (New York, Harper, 319 pp.). It is based on information and statements of opinion secured not only from teachers of philosophy but from teachers in other fields, as well as from government officials, business men, clergymen, writers, and others. Seven two-day regional conferences were held to obtain further evidence. The book has three parts: I. The Contemporary Situation; II. The Task of Philosophy; III. The Teaching of Philosophy—Things That Can Be Done. The third part includes discussions of the various courses in philosophy. It is too early yet to tell what effect this investigation will have.

BERTRAND RUSSELL

Bertrand Russell published *A History of Western Philosophy and Its Connection with Political and Social Circumstances from the Earliest Times to the Present Day* (New York, Simon & Schuster, 1945. xxiii, 895 pp.) which may be mentioned under American philosophy because, according to the Preface, it was "originally designed and partly delivered as lectures at the Barnes Foundation."

The book is a delight to read from its wit and lucidity; it is also full and deep enough to engage the interest of professional philosophers. As the title indicates, passages of general history are inserted throughout the book with a view to showing the connections of the philosophers' doctrines with the political and social circumstances of their times. The book has a further distinction in that the author has critically analyzed and approved or condemned historical doctrines instead of merely exhibiting them as museum pieces. There is a brief concluding chapter on "The Philosophy of Logical Analysis," the school to which Russell himself belongs.

LEADING PUBLICATIONS

B. A. G. Fuller's textbook, *A History of Philosophy,* which delighted many readers in its first edition, has been issued in a revised edition, corrected and improved and partly rewritten (New York, H. Holt, 1945, 2 vols.). In particular, the sections on the Pre-Socratics, on Nietzsche, and on Marxianism have been expanded. The introduction of more sub-headings adds to the usefulness of the book.

Basic Writings of Saint Thomas Aquinas, edited and annotated, with an introduction, by Anton C. Pegis (New York, Random House, 1945, 2 vols.) furnishes to students, in convenient form and at a reasonable cost, the means of making first-hand acquaintance with the thought of this great Catholic philosopher. All of Part I and some sections of Part II of the *Summa Theologica* are included, together with the first 113 chapters of Part III of the *Summa contra Gentiles.* The translation is that of the English Dominicans, with improvements by the editor.

The *Thomistic Bibliography, 1920-1940,* of Vernon J. Bourke (St. Louis, Mo., 1945, Supplement to Vol. XXI of *The Modern Schoolman*) provides a welcome supplement to the *Bibliographie thomiste* of Mandonnet and Destrez. It is a selective bibliography of 312 pages, containing over 4,000 titles listed analytically and a critical introduction on the authenticity and chronology of St. Thomas's works.

The second volume of Santayana's autobiography, *The Middle Span* (*Persons and Places,* Vol. II, New York, Scribner, 1945) carries the account of his life from his graduation from college through his years of teaching at Harvard.

In *A Preface to Logic* (New York, H. Holt, 1945. xi 209 pp.), Morris R. Cohen, that veteran champion of reason, continues to maintain the objective validity and ontologic reference of logic, making the world, in the phrase of the late F. J. E. Woodbridge, a realm of mind, although not without contingent elements. From this point of view he treats the foundations and ultimate subject-matter of logic, propositions, meaning and implication, concepts, the logic of fictions, probability, the statistical view of nature, normative science, and other matters pertaining to logic and its applications. There are some telling criticisms of Logical Positivism, which lately pre-empted the philosophical spotlight. The book is graced by Professor Cohen's usual literary, argumentative, and illustrative skill, aided by his extensive acquaintance with the sciences.

Prof. Charles L. Stevenson of Yale, in a book called *Ethics and Language* (New Haven, Yale Univ. Press, xi, 338 pp.), published at the end of 1944, proposes "to clarify the meaning of the ethical terms," such as "good" and "right," and "to characterize the general methods by which ethical judgments can be proved or supported." He contends that ethical issues differ from those of pure science because they involve disagreement in attitudes as well as in beliefs about matters of fact. Ethical terms, accordingly, have emotive as well as descriptive meaning. Ethical judgments are not simply descriptive but also quasi-imperative or hortatory. They express the attitude of the speaker and attempt to influence the attitude of the hearer. One method of settling ethical disagreements is the rational one of giving reasons for or against ethical judgments, but the reasons adduced serve to confirm or alter attitudes rather than to give strictly logical support. There are also non-rational methods, of which only persuasion is considered.

Ralph Barton Perry, in *Puritanism and Democracy* (New York, Vanguard Press, 1944. xvi, 688 pp.), presents an analysis and a historical survey of these two fundamental elements in our intellectual and institutional heritage, conceiving individualism to be basic in both. The book is not only an earnest expression of faith in American traditions but also a careful exposition and examination of a social, ethical system.

Charles Warren Everett has earned the gratitude of students of Bentham by his excellent edition, with an introduction, of a hitherto unpublished manuscript: *The Limits of Jurisprudence Defined, Being Part Two of An Introduction to the Principles of Morals and Legislation, by Jeremy Bentham, Now First Printed from the Author's Manuscript* (New York, Columbia Univ. Press, 1945. xxii, 358 pp.).

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Venable, Vernon. *Human Nature: the Marxian View*. New York, Knopf, 1945. xii, 217 xiii pp.

PERIODICALS

Ethics; an International Journal of Social, Political, and Legal Philosophy, Quarterly, University of Chicago.

The Journal of Aesthetics and Art Criticism, Quarterly, The American Society for Aesthetics.

The Journal of Philosophy, Fortnightly, 515 W. 116th Street, New York 27, N. Y.

The Journal of Symbolic Logic, Quarterly, Association for Symbolic Logic, Inc.

Journal of the History of Ideas; a Quarterly Devoted to Intellectual History, College of the City of New York.

The Modern Schoolman; a Quarterly Journal of Philosophy, St. Louis University.

The New Scholasticism; a Quarterly Review of Philosophy, Journal of the American Catholic Philosophical Association, Catholic Univ. of America.

The Personalist, Quarterly, University of Southern California.

The Philosophical Review, Bi-monthly, Cornell University.

Philosophy and Phenomenological Research; a Quarterly Journal, University of Buffalo.

Philosophy of Science, Quarterly, Williams & Wilkins Co., Baltimore, Md.

The Thomist; a Speculative Quarterly Review of Theology and Philosophy. Ed. by the Dominican Fathers of the Province of St. Joseph. 487 Michigan Ave., N. E., Washington, D. C.

AMERICAN PHILOSOPHICAL ASSOCIATION

The Eastern and Western Divisions of the American Philosophical Assocition accepted the invitation of the Pacific Division to a joint meeting at the University of California at Berkeley, Dec. 27-29, 1945, for the reception of the Seventh Series of Carus Lectures by Prof. Clarence I. Lewis on the "Analysis of Knowledge."

The Eastern Division announced that it would hold its first meeting since 1941 at Sarah Lawrence College, Bronxville, New York, Feb. 21-23, 1946.

ANTHROPOLOGY AND ETHNOLOGY

By Marian W. Smith

Department of Anthropology, Columbia University

GENERAL

Developments in Anthropology and Ethnology were not surveyed for 1943 or 1944, so that the present account covers the last three years of the Second World War. During this time trends in anthropology which had become apparent earlier were intensified. As in other of the sciences, men left their classrooms and research to take up active service with the armed forces. In addition, anthropologists found their services in demand in areas of government research and administration which had not previously employed their aid. Partially, this was owing to particular bodies of information at their command bearing on distant lands and peoples. Partially, and this aspect grew in importance over the three year period, it was owing to the value of certain methods inherent in their discipline and to techniques of field work. Methods for obtaining quick, accurate information on everyday affairs were found to apply as well to Italian and other European peoples as to the hill folk of New Guinea. These methods seem now to be in ever increasing demand for practical application. Administrative work in this country, in Europe, and in Japan claimed a number of anthropologists, and many, especially of the younger members of the profession, accepted permanent posts with government agencies.

ACADEMIC TRENDS

Teaching during the war shifted noticeably from a peacetime role to one geared directly with the war effort. Reconversion has not yet been completed, and it is probable that the effects of war on courses will be felt for some time to come. Interest in the ethnology of the Pacific Islands increased, and many departments added courses on Asiatic peoples to their curricula. The knowledge gained by anthropologists in working in collaboration with the armed forces both at home and abroad also stimulated academic interest in modern European ethnology. The fruits of all of this work will be in the future, but it is clear at the present time that participation in the war led significantly to an extension of the fields academically covered by ethnology and linguistics.

As mentioned in the account for 1942, linguists turned from aboriginal languages to written tongues. The demand for teachers of such languages as Japanese, Kurdish, Fanti, and Pidgin English could not be filled through the ordinary means and was met by employing anthropological linguists. By using native informants and dealing with the language by methods developed for the unwritten languages, the teacher learned with the students, and within a short time a number of experts were available. These methods proved successful, and because they were so widely accepted may prove to have a permanent effect on the teaching of foreign languages.

The extent of government participation in academic training of armed and specialist personnel may be suggested through mention of such programs as the Army Specialized Training Program, the school for Naval Administrators, the Civil Affairs Training School in the Far East, and the School of Overseas Administration. In all of these, anthropologists played their part. Various accelerated curricula in colleges and universities also included anthropology, and the interest shown in the subject, in this period of the triumph of the physical and chemical sciences, was a surprise to anthropologists as well as to administrators. For instance, in the two summer sessions by which Barnard College met the war needs for acceleration, courses in anthropology received next to the largest number of registrants.

The social science trend toward intensive work on modern problems has thus far affected the slant of some anthropological courses but has not changed the basic curriculum.

RACE RELATIONS

Political racism continued to be one of the major targets of many physical anthropologists and ethnologists. Some state universities, such as the University of Minnesota, sponsored programs combating race prejudice without involving anthropology directly. Others, such as the University of Washington, placed their programs in the hands of anthropologists. Much of the work along these lines was done by individuals in extra-curriculum time, and the impetus for the anti-prejudice movement has now passed beyond the control of any scientific group. The popular demand for such material is indicated by the fact that a Civil Affairs Pamphlet, *Races of Mankind,* by Ruth Benedict and Gene Weltfish, sold 42,000 copies in the first year after publication. A film strip has since been made with the book as background and is being widely distributed among children of grammar school age.

FIELD WORK

Field researches in anthropology decreased markedly during the last years of the war. The Carnegie Institution of Washington continued its investigations in the Mayan area of Middle America under the direction of Sol Tax. William N. Fenton of the Bureau of American Ethnology interspersed his war work with field studies of the Iroquois, including those of the Six Nations Reserve, Canada. Research among the Ojibwa Indians, jointly sponsored by Columbia University and the Milwaukee Public Museum, continued with Ernestine Friedl and Robert Ritzenthaler in the field one summer and Victor Barnou the next. Joyce Wike and Leona Steinberg spent seven months with the Indians of Washington and southern British Columbia. Marian W. Smith completed her investigations of Sikhs in this continent by observation of Sikh communities in British Columbia, and in the summer of 1945 Dr. Smith led the Columbia University Field Laboratory. The group investigated the Salish of the middle Fraser River, British Columbia, and consisted of Martin Ackerman, Helen Codere, Robert Hill, Eleanor B. Leacock, Estelle Sillen, students at Columbia, and Joanne Schriver of Vassar College. M. W. Stirling, chief of the Bureau of American Ethnology, continued his archaeological work in southern Mexico under the auspices of the National Geographic Society and the Smithsonian Institution. Frederick Johnson, of the Robert S. Peabody Foundation for Archaeology, made a type survey of interior Alaska. Plans for the speedy renewal of field research are already under way in many institutions.

PUBLICATIONS

Unlike the situation which existed during the First World War, publication did not fall off during the war years. This is particularly striking when taken in contrast with the amount of field work done. The production of trade and semi-trade books was actually stimulated by war demand, all of the existing series and periodicals continued publication and several new journals were instigated. The *Southwestern Journal of Anthropology,* under the editorship of Leslie Spier, accepts articles in all the branches of anthropology. The monograph series of the Viking Fund, known as *Viking Publications,* got under active way, and it also covers all of the fields of anthropological interest. One publication, sections of which will appear over several years, was started by the University of Pennsylvania to cover *Piedras Negras Archaeology* and the University Museum also sponsored a new series of *African Handbooks.* The *International Journal of American Linguistics* renewed publication after a lapse of some years following the death of Franz Boas, and the Linguistic Circle of New York inaugurated a new journal called *Word.*

MUSEUM DISPLAYS

Probably one of the most important war roles for museum displays was that played by the Denver Art Museum. Ethnological displays, entitled "Peoples of the Fighting Fronts," were installed in the various Army camps near Denver and rotated from one camp to the next. Photographs, maps, and objects, with clear labels, were all employed. Each of the displays was accompanied by a descriptive leaflet of general information and by a bibliography of readily available items. The American Museum of Natural History rearranged its Mexican Hall with particular attention both to attractive display and to the accurate arrangement of archaeological horizons. George Neuman, of Indiana University, started a small anthropological museum in the university library.

By far the most important single exhibit of the period is that on "The Art of the Pacific" arranged under the auspices of the Museum of Modern Art, New York, under the direction of Rene d'Harnoncourt, Ralph Linton, and Paul Wingert. This exhibit was opened to the public on Jan. 6, 1946. It deserves mention here as the most significant event in the field of primitive art since the 1941 exhibit of American Indian Art by the same museum, also under the aegis of Rene d'Harnoncourt.

MEETINGS

Regular meetings of the national anthropological organizations were resumed in the latter part of 1945. The American Anthropological Association held its first annual meeting in four years in Philadelphia in December. The Society of Physical Anthropologists met earlier, also in Philadelphia. The American Folklore Society met in joint session with the Modern Language Association in Chicago, and the Society for American Archaeology held several meetings in Washington, D. C. The American Ethnological Society held a special dinner meeting in New York in December, 1944, in conjunction with the required annual business meeting of the American Anthropological Association.

Both the American Ethnological Society and the Anthropological Section of the New York Academy of Sciences held frequent evening meetings throughout the period of the war. The Washington Society was even more active than usual because of the large number of anthropologists present in the city while engaged on war work. The Philadelphia Society and Central Branch also remained active, continuing to hold monthly meetings, and regular meetings were likewise held at centers in Chicago, New Haven, and Cambridge, in various places in California and the Southwest, and in many college anthropological clubs through the country.

The Viking Fund inaugurated a series of dinner meetings which were held first in the Columbia University Faculty Club and later in their own building at 14 East 71 Street, New York. The stimulation of discussion and personal contact possible only at such general meetings were particularly appreciated during the strain of the war years.

PERIODICAL PUBLICATIONS

American Anthropologist
450 Ahnaip St., Menasha, Wis.
American Journal of Physical Anthropology
36th Street and Woodland Ave., Philadelphia.
American Journal of Psychiatry
9 Rockefeller Plaza, New York City.
American Journal of Psychology
Cornell University, Ithaca, N. Y.
American Journal of Sociology
5750 Ellis Ave., Chicago.
American Political Science Review
Northwestern University, Evanston, Ill.
American Scientist
Yale University, New Haven, Conn.
International Journal of Ethics
5750 Ellis Ave., Chicago.
Journal of Abnormal and Social Psychology
374 Broadway, Albany, N. Y.
Journal of Comparative Psychology
Mount Royal and Guilford Aves., Baltimore, Md.
Journal of Educational Psychology
10 East Centre St., Baltimore, Md.
Journal of Educational Sociology
32 Washington Place, New York City.
Journal of Experimental Psychology
1822 Sherman Ave., Evanston, Ill.
Journal of General Psychology
Commercial St., Provincetown, Mass.
Journal of Philosophy
515 West 116th Street, New York City.

Journal of Social Psychology
Commercial St., Provincetown, Mass.
Mental Hygiene
State Office Building, Albany, N. Y.
Philosophical Review
55 Fifth Ave., New York City.
Psychoanalytic Review
64 W. 56th St., New York City.
Psychological Review
1822 Sherman Ave., Evanston, Ill.
Science
Smithsonian Institution Building, Washington, D. C.
Scientific Monthly
Smithsonian Institution Building, Washington, D. C.
Social Research
66 West 12th Street, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Academy of Political and Social Science, 3457 Walnut St., Philadelphia, Pa.
American Anthropological Association, American Museum of Natural History, New York City.
American Association for the Advancement of Science, Smithsonian Institution Building, Washington, D. C.
American Association of Physical Anthropologists, American Museum of Natural History, New York City.
American Economic Association, Northwest University, Evanston, Ill.
American Ethnological Society, 100 Washington Sq. E., New York City.
American Genetic Assn., 1108 Sixteenth St., N.W., Washington, D. C.
American Philosophical Society, 104 S. 5th St., Philadelphia, Pa.
American Political Science Assn., 105 Harris Hall, Northwestern University, Evanston, Ill.
American Psychiatric Assn., 9 Rockefeller Plaza, New York City.
American Psychological Assn., University of Michigan, Ann Arbor.
American Psychopathological Assn., 520 Commonwealth Ave., Boston.
American Society for Psychical Research, 40 E. 34th St., New York City.
American Sociological Society, U. S. Dept. of Agriculture, Washington, D. C.
National Committee for Mental Hygiene, 1790 Broadway, New York City.
National Institute of Social Sciences, 271 Madison Ave., New York City.
Psychological Corporation, 522 Fifth Ave., New York City.
Society for American Archaeology, Illinois State Museum, Springfield, Ill.

PART SEVEN

THE HUMANITIES

DIVISION XXV

LITERATURE AND LANGUAGE

FICTION

By May Lamberton Becker
New York Herald Tribune

GENERAL

If the year's fiction had few high spots, it maintained a general level for which credit should be given in a year of national strains so various, such as ranged from the impact of heavy casualty lists to sudden letdown in the cessation of hostilities and consequent confusions of peace. It was not a year favorable to recollection of the soul in quietness, nor can a year that the public felt, while yet it was new, must be the last of the long strain, be one that holds up with outstretched arms the ideals of endeavor. Preoccupation with strictly home problems was just beginning to show in fiction, having taken firm hold of other fields; humor, that has never really failed us all through our stresses since war began, did not turn sour in victory. It could not be called a year of distinction in our literature, but it provided, in novels, all that could have been expected of it.

WAR NOVELS

The actual war novels gained in dignity by slowing down in production during 1945. One of the best-beloved in this category, John Hersey's *A Bell for Adano,* won the year's Pulitzer award for the best piece of American fiction. This novel had meanwhile repeated its success in the dramatization made of it by Paul Osborn, in which, though all the action takes place in Major Joppolo's office, the main episodes of the book are included.

Glenway Wescott's return to prominence as an author was effected by the strong, thoughtful—and of necessity painful *Apartment in Athens,* which may remain one of the documents of war psychology in fiction, through its study of the strange phenomenon known as Nazi mentality. *Stronger Than Fear,* by Richard Tregaskis, centers in the struggle of an American officer, who is leading his men through a German-held city, against the creeping fear born of battle fatigue. The underground is no longer restricted in books to detective fiction or the middle zone of the spy story. One of the most distinguished novels to speak, in the true French tradition of nothing-too-much, for active and secret French resistance, is *Maquisard,* a brief, pulsing narrative of a wartime Christmas by Albert J. Guerard, Jr., an American officer of French descent, intimately aware of both types of mind. Martha Allbrand's *None Shall Know* is about the underground in Switzerland. *Sowing the Wind,* by Martha Dodd, daughter of our Ambassador to Germany in the early days of the Nazis, is a step-by-step study of progressive decadence in a young German growing up—and going down—with the Party. The sensitive mind of a refugee treats the same subject with dignity and restraint in *The Prisoner,* by Ernst Lothar, but for all its quiet, his determination burns. Lothar's *The Door Opens,* appearing later in the season is of a type whose popularity is strong and increasing, an exquisite evocation of pre-Nazi Vienna and of his own two little girls growing up in it; though keeping to fact, it has the technique of fiction.

The direct personal approach to war continued in novels such as *Beachhead on the Wind,* by Carl Jonas, with Coast Guardsmen and what the war meant to them in the bleak Aleutians. The veteran's return, dealt with from every point of view in non-fiction, motivates *Lights Out,* by Baynard Kendrick, a story of the adjustment to life of a sightless soldier. In MacKinlay Kantor's novel in verse, *Glory for Me,* three soldiers return to their families and the unsettlements of civilian life, while John P. Marquand's slight story of a war marriage even slighter, *Repent in Haste,* and Otto Schrag's *Sons of the Morning,* with the difficulties of a French war bride in a New England village, seem to be forerunners of more to come in this field.

CHARACTER NOVELS

Sinclair Lewis, in *Cass Timberlane,* returned to the Middle West with which he has so often dealt, finding it just the same, showing the same fire, and using the same formula. Booth Tarkington's *Image of Josephine* maintains his standard of character analysis; Alice Tisdale Hobart's *The Peacock Sheds His Tail,* through an international marriage, introduces the American reader to three generations of troubled Mexican life as it affects an aristocratic Catholic family. John Steinbeck's *Cannery Row* moves on the same social level as *Tortilla Flat* and has much the same robust charm. Upton Sinclair's Lanny Budd saga went on in *Dragon Harvest,* where this wealthy undercover man from President Roosevelt is active from the crisis at Munich to the fall of Paris with the German war machine in full blast; there is a general, cumulative interest in these successive novels which might be called historical fiction of today. Edna Ferber's *Great Son* takes in four generations of a Seattle family, with Seattle's story more alive than theirs, from 1851 to Pearl Harbor. Ellen Glasgow, an artist to the last, died as the year was closing; a posthumous volume of Scott Fitzgerald's collected pieces, *The Crack-Up,* came as a reminder of what once was promise.

OF SOCIAL IMPORT

The tremendous force of Richard Wright's *Black Boy* drove it, though an autobiography, straight into the field of the novel, and its native beauty, without attempting to cover the harrowing conditions under which his boyhood was spent, lifts it into literature; it was very widely read and may in all probability be the book most strongly impressing the greatest number of people who read it, and will remember it, this year. *Hunky Johnny,* by Edward Jay Nichols, had also a social import, taking place in the Slovak district of Gary, Ind., and at the University of Chicago. This was a first novel; others of promise were Réné Kuhn's *24 Charlton,* characteristic home life of Greenwich Village; childhood and adolescence in Walter Karig's *Lower Than Angels,* and Stephen Stelcy's *The Cradle Will Fall.* Elizabeth Hardwick's sensitive study of a young girl in *Ghostly Lover,* Ruth Peabody Harnden's ambitious treatment in *Bright Star or Dark* of Irish wartime psychology at the present day; and a Charleston novel by Robert Molloy, *Pride's Way,* centering in two eccentric old ladies and warm with Charleston customs and spirit, are to be noted. The novel of adolescence that created most stir as a work of art was William Maxwell's *The Fallen Leaf,* a study of two boys that proved itself likely to last, while young people in a disturbed family had a sympathetic interpreter in Dan Wickenden's *The Wayfarers.*

Anne Parish's *Poor Child* reveals a slum boy nearly lost by luxury.

ROMANTIC FICTION

The romantic novel of adventure, picaresque, rapidly moving, and always a popular favorite—especially if it runs to a great many pages—was represented earlier in the season by Samuel Shellabarger's *Captain from Castile,* in Mexico and Spain in the sixteenth century, and later on in the year by the sky-rocket success of *The Black Rose,* by Thomas B. Costain, which takes place in the thirteenth century in England and the Orient. It is safe to say that the long, steadily moving pageantry of such fiction will always take on a special value in time of nerve-strain and approaching fatigue, as a calming agent—something the inexperienced would scarcely expect from fiction in which something stirring takes place all the time—but a long way off.

FANTASY AND ADVENTURE

Even fantasy showed its head, though not without some timidity, before the year was over. *The White Tower,* by James Ramsey Ullman, in which six people are on a mountain in Switzerland, has philosophical intent and overtones; Henry Morton Robinson's *The Perfect Round,* though presenting a carrousel and the fortunes of its proprietor and those around him, concerns itself with the merry-go-round as a symbol of struggle between good and evil, and in *High Barbaree,* by Charles B. Nordhoff and J. Norman Hall, which takes the line of development of *Lost Island,* a young navy pilot shot down in mid ocean and seeing his comrade die as they drift, is released by fevered dreams from the anguish and confusion of the present to his past life in Iowa.

A feature of fantasy in 1945 was that age-bars went down, in two cases, between children's literature and that for adults. One of these was a fairy tale for grown-ups by James Thurber, *The White Deer,* which straightway became just as popular with children, and the other, E. B. White's wistful tale of a mouse-man, *Stuart Little,* which though frankly offered as a children's book was caught up at once by their elders. *Focus,* by Arthur Miller, an unusually striking psychological novel, starts from the distortion of vision of a little meek man who should be wearing glasses but fears to do so because, though he is a Gentile, when he wears glasses he looks like a Jew; the handling of his change of heart is expert.

FAMILY-LIFE FICTION

The tendency to merge interests, that has already taken place between the essay and the short story, is now, by reason of the popularity of family-life reminiscences, becoming evident in regard to this sort of book and fiction; we are getting more and more "familiar memoirs" that have deliberate *dichtung* mixed in with their *wahrheit.* The transition is easy; Bellamy Partridge, whose reminiscences of his own background in *Country Lawyer* and *Big Family* endeared him to more than those of his own generation, has written a lively novel with the same sort of atmosphere, *January Thaw,* bringing out the comedy of disputed possession of a Connecticut farmhouse. Louise Andrews Kent, who set her home life to music in *Mrs. Appleyard's Year* and its sequel, adds a touch of burlesque and produces good light fiction —never easy to do well—in *Country Mouse. Party Line* by Louise Baker, preserves the humors of small town telephoning. *Anything Can Happen* by George and Helen Papashvily, is what did happen to them, but the wildest fancy would have trouble in competing with this unpredictable Georgian menage. *The Friendly Persuasion,* by Jessamyn West, is undoubtedly a true picture of what life was like in a Quaker settlement in Indiana, but the interplay of humor and deep religious conviction is managed with the novelist's art in a succession of short stories. *God Bless Our Aunts,* by Rachel Meisenhelder, is taken from the life—not so far back—of an Irish-Pennsylvania-Dutch clan in Pennsylvania, set down by one of its immediate descendants, in the spirit of alarmed hilarity that the actual doings of these dominant relatives did inspire. Another first novel, *Gold in the Streets,* by Mary Vardoulakis—this won the year's Intercollegiate Fiction award made by Dodd, Mead—while not a personal experience, stems from the author's Greek family background and her renewal of national pride by working in Greece.

REGIONAL NOVELS

Regional novels continue, but there has been a pause in the production of those regional historical novels once so frequent, novels so long that if placed end to end they would stretch across the national history, and sometimes produced with no apparent reason save that a particular gap in it had not yet been closed. Descendants of the Mormon pioneers, who have had their place in the sun lately in non-fiction, face the twentieth century in Richard Scowcraft's *Children of the Covenant.*

The flavor of contemporary Charleston, strong in Molloy's novel, is combined with the sparkle of family life in Josephine Pinckney's, which has the characteristic title *Three O'Clock Dinner.* Ralph Fry in *Uncle 'Lish* gets back to the old-fashioned but still chipper generation of salty New Englanders. *Not in Our Stars,* by Josiah E. Greene—a Macmillan Centenary award—takes place on a dairy farm and has a firm word to say on community life.

Pearl Buck's *Portrait of a Marriage* could be called regional, for it is strong in its fidelity to customs and outlook of Pennsylvania German farm-people, but she creates her desired impression of a perfect love between husband and wife by providing evidence that only perfect love could have held them together at all. A sudden success was Ben Ray Redmond's *Rooster Crows for Day,* which took one of his Mississippi river men, river boat and all, to the Congo. Barbara Webster's *Mrs. Heriot's House,* for all its humor, has the shiver that rises at the sight of gradual fascination by something one does not wish or intend to do—and does. *Heartwood,* by Anne Miller Downes, is Vermont through and through. *Skip to My Lou,* by William Martin Camp is about Ozark people lured to the California shipyards. The chicken farm in Betty MacDonald's *The Egg and I* was a real one, but the humor with which she met its difficulties gives it the novel's spirit and popularity. John Gould's *Farmer Takes a Wife* is another example of excursion of experience into print; a Maine farmer takes home a Boston bride. The most important, however, of the books that occupy a position midway between fiction and something else is not a novel, but Louis Bromfield's return to the soil as described and explained in *Pleasant Valley,* together with some autobiography and a good deal about farming as seen through the eyes of one who has been for a long while away from it. *Dayspring,* by Harry Sylvester, is more than regional; a psychological study of the Penitentes, it creates a strong sense of religious conviction leading to conversion.

SHORT STORIES

Short stories included the ten brilliant studies of life in a mountain village south of the border, Josephine Niggli's *Mexican Village*—which could, if desired, also qualify as social documentation; a selection from the work of William March over the period from 1928 to 1944, *Trial Balance,* of which six are new; Edita Morris's thoughtful *Three Who Loved,* romantic tales with a Swedish background; John O'Hara's *Pipe Night,* stories largely from *The New Yorker,* by the author of *Appointment in Samarra;* Robert McLaughlin's *A Short Wait Between Trains,* searching stories of life in Army camps; and Caroline Gordon's *Forest of the South* whose 16 stories are all about that region from the days of the Indians through the Civil War to hunting and fishing of later times. There were interesting examples of two regular annuals, the *Best American Short Stories of 1945* now edited by Martha Foley, and the *O. Henry Memorial*

Award Prize Stories of 1945, edited by Herschel Brickell, and a large and distinctive collection of short stories by Catholic writers, edited by Sister Mariella Gable as *Our Father's House.*

BOOK ON BEST SELLERS

A book came out during the year that without claiming literary merit, will continue to be of direct value in tracing the trends and changes of literary taste over a considerable period; Alice Payne Hackett's *Fifty Years of Best Sellers,* which wastes no time in explaining why they were but tabulates, with brief necessary notes, just what they were. This runs from 1895 to 1945.

POETRY

By August Derleth
Author and Editor

ANTHOLOGIES

Anthologies of poetry in 1945 increased in number over those in 1944, but the number of good anthologies did not vary particularly. The accent was on war in three out of five anthologies worthy of scrutiny. William Rose Benet and Norman Cousins edited *The Poetry of Freedom* (Random House), Oscar Williams, *The War Poets* (John Day), and Richard Eberhart and Selden Rodman, *War and the Poet* (Devin-Adair). Of these, the Williams collection is primarily one of modern poems, such as Williams personally likes. The Eberhart-Rodman anthology is comprehensive, ranging from 1800 B. C. to 1945. The Benet-Cousins book accents the liberal freedom-loving note throughout.

There were many lesser anthologies such as *From the Valleys to the Mountains: Midwest Poetry* (Chaparral Poets Assn.), but few of them contain memorable poetry. Quite the contrary is true of the prose and poetry anthologies competently edited and published, such collections as *Mid-Country,* edited by Lowry C. Wimberly (Univ. of Nebraska Press-Crowell), and *America Is West,* edited by John Flanagan (Univ. of Minnesota Press), contain some very fine regional poems. There was no Moult anthology of "best poems" this year, and apparently the series came to an end with *The Best Poems of 1943,* published in 1944. Perhaps the best anthology of the year is the ably edited Modern Library Giant, *Famous English and American Poetry,* jointly edited by William Rose Benet and Conrad Aiken. This is a carefully compiled anthology which deserves a good public.

SELECTIONS AND COLLECTIONS

Some notable selections and collections by well-known names were published during 1945. Three such selections are outstanding, though not of equal merit. They are the *Collected Poetry of W. H. Auden* (Random House), which is a distinguished volume adequately illustrating the influence of Auden and the roots of that influence; *Selected Poems,* by John Crowe Ransom (Knopf), a remarkable selection all the more striking for its slimness, yet containing all the poems Ransom has thought worthy of preservation; and *Poems 1920-1945,* by David Morton (Knopf), a selection of the poet's best made from his previous books of the last quarter-century, with the addition of many poems never before published in book form.

Other collections and selections deserve the attention of discriminating readers. Marsden Hartley's *Selected Poems,* edited and introduced by Henry W. Wells (Viking), directs attention to a less-known phase of this well-known artist's work. Rafael Alberti's *Selected Poems,* translated by Lloyd Mallan (New Directions), brings together for the first time in English a substantial number of Alberti's work, enough to familiarize the new reader with his work. Similarly, E. J. Pratt's *Collected Poems* (Knopf) presents the best work of a Canadian poet who stands well to the foreground among Dominion poets. *Springboard: Poems, 1941-4* (Random House), is a collection by Louis MacNeice. Others which are worthy of reading include *Collected Poems* of Alfred Kreymborg (Dutton), *Poems New and Selected,* by Richard Eberhart (New Directions), *Three Russian Poets* (Pushkin, Lermontov, and Tyutchev, translated by Vladimir Nabokov), published by New Directions, and *Collected Poems,* by Sylvia Lynd (Cambridge University Press).

LONG NARRATIVE VERSE

Probably the most memorable book-length poem of the year is the long philosophical poem by Robert Frost, *A Masque of Reason* (Holt). Certainly one of the most impressive performances, quite regardless of its unevenness, its great length, and its occasional fumbling, is *Tahl,* by Jeremy Ingalls (Knopf), an epic poem depicting the inner life, as well as the superficial, of a young composer-aviator and his intimates and acquaintances. MacKinlay Kantor's war poem, *Glory for Me* (Coward-McCann) brought to the fore in poetry a name long associated with the current best in prose fiction. Karl Shapiro's *Essay on Rime* (Reynal & Hitchcock), not strictly a narrative poem, is a kind of instructional philosophizing on the art of writing poetry, which, despite many good lines, only underscores the conviction that Shapiro's orthodox short verse is tremendously better—that, in short, he writes it better than he tells how to write it, which is not unusual among creative artists.

George Zabriskie's *Like the Root* (Coward-McCann) is a remarkable philosophical poem exploring the nature of mutability, the idea of cyclic continuity and man's part in it, by a young poet whose first collection some years ago was one of the best first volumes and gave great promise of his future (*The Mind's Geography*). Hermann Broch's poetic novel, *The Death of Virgil,* translated by Jean Starr Untermeyer (Pantheon), has been much touted as a poem, which it was in the original German, and contains many poetic passages in Mrs. Untermeyer's version; whether prose or poetry, *The Death of Virgil* is one of the genuinely important books published in 1945, and one which has far more chance of lasting beyond its time than many another far-more-advertised book.

FIRST BOOKS

Perhaps the most promising among the first books of the year is Byron Herbert Reece's *Ballad of the Bones and Other Poems* (Dutton), with an introduction by Jesse Stuart. This book indicates that Reece has restored balladry to poetry with signal force and impact, for his title poem and his other ballads in the first section of the book are among the best to have appeared in print in the past two decades. The initial collection (Harper) by Gwendolyn Brooks, a young Negress of Chicago, gives evidence of much promise, and so do three other first collections—Loyd Haberly's *Silent Fame and Other Poems* (Macmillan), *Poems,* by Jon Beck Shank (Knopf), and *Soldiers and Strangers,* by Edward Fenton (Macmillan). Two collections are posthumous. Alun Lewis' satiric *Ha! Ha! Among the Trumpets* (Macmillan) contains some of the best war poetry of the recent war; Robert Bhain Campbell's *The Task* (Farrar & Rinehart), gives proof of some promise yet some distance removed from poetic maturity, despite the insistence of the editor.

Certain first collections were prize or contest winners; Charles E. Butler's *Cut Is the Branch* is the Yale Younger Poets book of 1945; Alice Monks Mears' *Brief Enterprise* (Dutton) is the book of the year for the League to Support Poetry. Norman Nicholson's fine *Five Rivers* (Dutton) took a coveted British prize, while Irene Carlisle's *Music By Lamplight* won the Dierkes Press contest and was published by that Press. Also worth reading are *The Invisible Wife and Other Poems,* by Winthrop Bushnell Palmer (Fine Editions Press), *Time Turns Under,* by Florence Crocker Comfort (Decker), and *Country Road,* by Leone Rice Grelle (Macmillan).

NEW VOLUMES BY FAMILIAR POETS

Familiar poets perhaps fared better in 1945 than any other group, very largely because their work struck and held to a consistently higher level than usual. This was true but for a few rare exceptions, perhaps most notably that of William Ellery Leonard, whose *A Man Against Time* (Appleton-Century), published posthumously, was a pathetic sonnet-sequence which stands as a pale performance indeed beside his earlier *Two Lives.* Emily Dickinson's *Bolts of Melody* (Harper), a collection of newly discovered poems, however interesting to the poetry-lover, contains much inferior work, and also some scraps of poems by other hands not apparently recognized by the editors of this volume. Oscar Williams' *That's All That Matters* (Creative Age) is another collection of his highly individual poems; his work continues interesting, but there is an inescapable suggestion that he is beginning to wear thin.

John Malcolm Brinnin's *No Arch, No Triumph* (Knopf), though somewhat more obscure and allusive than earlier books, nevertheless gives every evidence of the poet's growing maturity and stature among his contemporaries. Winfield Townley Scott's *To Marry Strangers* (Crowell) is an uneven collection, containing both, some of his best and some of his least good work, but is still a volume to have and know, since Scott is one of the better younger poets, not affiliated with any poetic *ism* or movement. Randall Jarrell's *Little Friend, Little Friend* (Dial) renews interest in his vivid, modern imagery. Robert P. Tristram Coffin, in *Poems for a Son with Wings* (Macmillan), continues to write in the familiar patterns of Frost, Van Doren, and Coffin, a kind of homely folk verse, not to be confused with the folksy doggerel of Guest *et al.;* the new collection contains many very fine poems, some of which had been better omitted. *The Edge of Night* (Decker) is the second book by August Derleth since the belated appearance of his *Selected Poems* in 1944, and, while repetitive in theme, contains some of his best verse.

C. Day Lewis' *Short Is the Time* (Oxford) is a new volume by one of the leading British contemporary poets; there is some reason to believe that Lewis has hit a level and is not likely to rise much above it; nonetheless, his poetry commands intelligent attention whenever and wherever it appears. Walter de la Mare's new collection, *The Burning Glass* (Viking) is a distinguished book, largely traditional in form, but showing no slackening of skill. Charles Peguy's *God Speaks* (Pantheon) contains some of the most carefully wrought mystic and spiritual poetry of our time, unstudied, vivid in imagery. Charles Henri Ford's *Poems for Painters* (View Editions) is candidly Modernist on the surrealist wing, not very intelligible, labored with obscurities and deliberate, studied eruditions which obfuscate, yet of interest in a challenging and provocative way. It brings up again the question of whether poetry can be considered as meriting attention if it lacks social resonance and is intelligible only to a select few who approach it with guide-books.

Gustav Davidson's *Thirst of the Antelope* (Dierkes) is as forthrightly traditional and pleasing in its evidence of Davidson's quiet talent as Ford's book is modern. Carl Carmer's *Taps Is Not Enough* (Holt) holds promise, but it is not to be considered on the same plane as Carmer's prose. Paul Engle's *American Child* (Random House) is a sensitive and evocative sonnet-sequence in honor of his young daughter, very appreciative of the mental attitudes of the child and at the same time conscious of the psychic bond between parent and offspring. Herbert Read's *A World Within a War* (Harcourt) is a book of poems about the conflict within man in a war-torn world. *The Song of Lazarus,* by Alex Comfort (Viking) is another book which comes to us from abroad, and further proof that the young British poets are singularly vital; Comfort's poems are not orthodox, but neither are they wound about with semantics and obscurantist allusions. Robert Nathan's *The Darkening Meadows* (Knopf) is good minor poetry which many people will read with enjoyment. William Carlos Williams' *The Wedge* (Cummington Press) is typical of his work, but somewhat more weighted with philosophy, and less patently planned poetry, very worth reading. Allen Tate's *The Winter Sea* (Cummington Press) is another distinctive little volume the discriminating reader will want to own, though Tate's poetry is very much *sui generis*.

Other collections of merit include *Poems*, by A. M. Klein (Jewish Publication Society of America); *The Bridge*, by Stanley Burnshaw (Dryden); *Poems MCMXLII*, by William Everson (Untide Press); *Rime, Gentlemen, Please*, by Robert Farren (Sheed & Ward); *A Winter's Journey*, by Richard Hart (Contemporary Poetry); *The Constant Mistress*, by Tom Boggs (Contemporary Poetry); *No Mortal Blow*, by Charles Glenn Wallis (Contemporary Poetry); *Poems*, by Madeline Gleason (Grabhorn Press); *Perilous Balance*, by Arnold Stein (Univ. of Minnesota Press); *Take It to the Hills*, by Zella Price (Humphries); *Crushed for Better Wine*, by Sara Robbins (Philosophical Library).

NEW EDITIONS

Knopf published in 1945 a colorful new edition of William Rose Benet's Pulitzer-Prize poem, *The Dust Which Is God's*, and still another translation of Rilke's poems appeared, *Sonnets to Orpheus and Duino Elegies*, translated by Jessie Lemont (Fine Editions Press). Among handy collections, Louis Untermeyer's *The Pocket Book of Story Poems*, published by Pocket Books, Inc. late in December, is the best.

HISTORY

By Oscar Handlin

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CONTINUED DEPRESSION IN HISTORICAL STUDIES

Peace brought no immediate prospect of recovery from the depression into which historical studies slumped after 1941. Activities arising from the war that drained away the energies of historians, reduced the meager numbers of graduate students, caused cancellation of the meetings of learned societies, and limited research to materials locally available continued to restrict scholarly endeavors. In 1945, there was again a marked fall in the number of volumes published in this field and, of those which appeared, the most significant were the products of projects initiated before Pearl Harbor.

V-J Day brought a change but no immediate amelioration. The return of scholars to their studies began almost at once, and the universities received the first trickles of a rising stream of candidates for higher degrees eager to resume interrupted careers under the terms of the G-I Bill of Rights. By the end of the year, many institutions found their capacities already strained, and faculties were in process of adjustment to the new tasks of instruction presented by students just out of uniform, many married, most living in crowded quarters, and all beset by problems unknown to earlier generations.

A significant quota of historians remained at work, in and out of the Government, concerned with the gargantuan task of compiling the history of the war and organizing the records of the civilian and military agencies that shared the burdens of the conflict. Most of the publications, that were the outcome of these efforts, have thus far been considered confidential in nature and restricted in circulation. The end of hostilities may bring a more liberal policy, but, in any case, it is too early to estimate the permanent value of these undertakings.

GENERAL WORKS

Bertrand Russell's *History of Western Philosophy* (Simon & Schuster) was American in inspiration if not in the citizenship of its author. This provocative volume surveys the whole sweep of western thought against the background of social and economic conditions. Weak as history and manifesting occasional surprising lacunae in knowledge, it nevertheless abounds in enlightening insights that come from an intelligent understanding of the problems of philosophy. (See "Philosophy," p. 905.)

With this exception, the general works of the year were either texts or surveys. Heinmann's *History of Economic Doctrines* (Oxford) falls into the former category; Owsei Temkin's *Falling Sickness* (Johns Hopkins), a comprehensive history of epilepsy; Norman Taylor's *Cinchona in Java: the Story of Quinine* (Greenberg); *Armament and History* by J. F. C. Fuller (Scribner), and L. K. Anspacher's *Story of Liberty* (Island Press) fall into the second. In *Byways in Quaker History* (Pendle Hill), H. H. Brinton has edited a series of miscellaneous essays.

COLONIAL AMERICA

The high quality of publications in this field compensated somewhat for their fewness in numbers. G. F. Willison's *Saints and Strangers* (Reynal & Hitchcock) is a lucid and informative account of Pilgrim emigration from England and from Holland and of the settlement and development of Plymouth Colony, carefully compiled and written with wit and intelligence. E. L. Raesly's *Portrait of New Netherland* (Columbia) describes the Dutch outpost on the Hudson until the English conquest, drawing heavily on literary sources and emphasizing social aspects. W. T. Baxter's *House of Hancock* (Harvard) analyzes the nature of commercial transactions in Boston in the half-century before the Revolution. Ella Lonn's *Colonial Agents of the Southern Colonies* (North Carolina) is a careful study of the work of these intermediaries.

AMERICAN SOCIAL HISTORY

The field of intellectual history saw the most noteworthy work of the year. *The Age of Jackson* by A. M. Schlesinger, Jr. (Little, Brown) contains a brilliant interpretation of the body of radical ideas that sprang from the discontent of urban artisans in the 1830's. Richard Hofstadter traces the development of *Social Darwinism in American Thought* (University of Pennsylvania) in the half-century after the Civil War. A. A. Ekirch's *Idea of Progress in America* (Columbia) deals with the first half of the Nineteenth Century.

Other aspects of American social history received treatment in H. L. Mencken's Supplement to his *American Language* (Knopf) and B. J. Stern's *American Medical Practice in the Perspective of a Century* (Commonwealth Fund). Albea Godbold's careful study examines the origin of the *Church College of the Old South* (Duke), G. R. Stewart's *Names on the Land* (Random House) is a popular account of place-naming in America, and Volume II of the *Album of American History* (Scribner), edited by J. T. Adams, covers the years from 1783 to 1853.

AMERICAN NATIONALITY GROUPS

A Nation of Nations (Harper) by Louis Adamic is a disappointing attempt to break away from the Anglo-Saxon bias of conventional American historiography. In this case a righteous cause did not salvage a work poorly written and carelessly thought out. In *Foreign Influences in American Life* (Princeton), David F. Bowers has collected a series of essays and bibliographies that comprehends also the influence of the diffusion of ideas. H. W. Pfund's *History of the German Society of Pennsylvania* (the society) covers a career of almost two centuries.

B. A. Botkin's *Lay My Burden Down* (Chicago) is a folk history of slavery sifted from the accounts of surviving bondsmen gathered by the Works Progress Administration. Herbert Aptheker assembled a collection of *Essays in the History of the American Negro* (International).

AMERICAN LOCAL HISTORY

New York State was favored by two excellent works in 1945. Henry Christman's *Tin Horns and Calico* (Holt) is an exciting account of the anti-rent riots in the Hudson Valley, and Blake McKelvey's *Rochester in the Civil War* (Rochester Historical Society) deals with various aspects of the impact of the conflict upon a growing city. Three works touched on local economic history: H. G. Schmidt's *Rural Hunterdon* (Rutgers), an agricultural history of a New Jersey region; William Wilgus' *Role of Transportation in the Development of Vermont* (Vermont Historical Society); and George Marlowe's *Coaching Roads of Old New England* (Macmillan). Other local studies were L. O. Renne's *Lincoln and the Land of the Sangamon* (Chapman & Grimes) and S. C. Williams, *Phases of the History of the Supreme Court of Tennessee* (Watauga Press).

THE AMERICAN WEST

Winifred Kupper's *Golden Hoof* (Knopf) and *Shepherd's Empire* (Oklahoma) by C. W. Towne and E. N. Wentworth deal with sheep-raising in the southwest. Other specialized studies in this field include E. H. Ackerknecht's *Malaria in the Upper Mississippi Valley, 1760-1900* (Johns Hopkins), A. P. Nasatir's *French Activities in California* (Stanford), an archival calendar, W. N. Bischoff's *Jesuits in Old Oregon* (Caxton), and W. D. Wyman's *Wild Horse of the West* (Caxton).

ECONOMIC AND POLITICAL HISTORY

Curtis Garrison's *United States, 1865-1900* (Hayes Foundation) contains a useful survey of current literature. Works in diplomatic and political history include M. E. Loughrey's *France and Rhode Island* (King's Crown), a survey of the period to 1800; *The First Americans in North Africa* (Princeton) by L. B. Wright and J. H. MacLeod, an account of General Eaton's relations with the Barbary pirates; Leo F. Stock's *Consular Relations between the United States and the Papal States* (American Catholic Historical Society); and *United States Naval Academy, the First Hundred Years* (Whittlesey House) by John Crane and J. F. Kieley.

The most important work in economic history was F. A. Shannon's *Farmer's Last Frontier* (Farrar & Rinehart), a penetrating analysis of American agriculture between 1860 and 1897 and fifth volume in a cooperative economic history of the United States. E. C. May's *Principio to Wheeling* (Harper) is a regional study of the steel industry since 1715. *Lumber and Labor* (Farrar & Rinehart) by V. H. Jensen is an account of working conditions and efforts at unionization in a turbulent industry; and E. J. Hadley's *Magic Powder* (Putnam) is a history of cement manufacturing centering about the development of the Universal Atlas Company.

Accounts of America in the Twentieth Century include surveys by Harvey Wish (Harper) and F. R. Dulles (Houghton Mifflin). *The World's Biggest Business* (National Industrial Conference Board) is an analysis of American spending in the last 30 years by P. W. Ellis. Phases of the history of two world wars are touched on in *Indiana Public Opinion and the World War 1914-1917* (Indiana Historical Bureau), *America's Far Eastern Policy* (Macmillan) by T. A. Bisson, and Waverly Root's *Secret History of the War* (Scribner). The problems of peacemaking are the subject of T. A. Bailey's *Woodrow*

Wilson and the Great Betrayal (Macmillan), an account of the struggle for ratification of the Treaty of Versailles in the United States Senate.

THE OTHER AMERICAS

The steady growth of interest in our hemispheric neighbors slackened in wartime, a development marked by a falling off in publication. Works in the history of Canada include B. G. Sack's *History of the Jews in Canada* (Canadian Jewish Congress) and D. D. Calvin's *Saga of the St. Lawrence* (Bruce Humphries), a survey of timber and shipping through more than a century. Of more substantial value was J. B. Brebner's *North Atlantic Triangle* (Yale), an enlightening discussion of the relationships among the United States, England, and Canada.

A somewhat similar topic for the regions to the southward occupies the attention of Harry Bernstein in *Origins of Inter-American Interests, 1700-1812* (Pennsylvania). Y. F. Rennie's *Argentine Republic* (Macmillan) and *Chile: an Economy in Transition* (Macmillan) by P. T. Ellsworth center their interest on recent developments in those nations.

MODERN EUROPE

Cut off from the nourishment of source materials by war, the historians of modern Europe have nevertheless produced a respectable number of valuable contributions. R. L. Schuyler's *Fall of the Old Colonial System* (Oxford) is a discriminating and illuminating account of the growth of free trade policies in Great Britain after 1770. In *England in the Eighteen-Eighties* (Oxford), Helen M. Lynd attempts to trace a turning-point in social development in that decade. Other works in English history include H. G. Hanbury's *English Courts of Law* (Oxford) and A. J. Henderson's *London and the National Government, 1721-42* (Duke), an analysis of the Walpole administration in City politics.

Publications in continental history were sporadic and scattered. For Holland, there was a general history, *Evolution of the Dutch Nation* (Roy) by B. H. M. Vlekke and an excellent special study, Thorsten Sellin's *Pioneering in Penology* (Pennsylvania), a description of the Amsterdam houses of correction in the seventeenth century. Rudolph Heberle's *Democracy to Nazism* (Louisiana State) is a regional study of the development of political parties in Germany. William Salamone's *Italian Democracy in the Making* (Pennsylvania) is an analysis of politics between 1900 and 1914. Works on eastern Europe include the essays collected by B. E. Schmitt in *Poland* (California) and Feliks Gross' *Polish Worker* (Roy).

EUROPE BEFORE THE SEVENTEENTH CENTURY

E. T. Salmon's *History of the Roman World* (Macmillan) covers the period from 30 B. C. to 138 A. D. C. E. Odegaard's *Vassi and Fideles in the Carolingian Empire* (Harvard) is a monograph of considerable scope. Frederic C. Lane's *Andrea Barbarigo—Merchant of Venice* (Johns Hopkins) is an acute examination of business conditions and practices in the early Fifteenth Century. *Renaissance Literary Criticism* (Columbia) by Vernon Hall is particularly concerned with the social context. The first volume of E. M. Morse's *History of Unitarianism* (Harvard) deals with origins in Socinianism and its antecedents.

ASIA AND AFRICA

There is an excellent account of art and civilization in Sirapie Der Nersessian's *Armenia and the Byzantine Empire* (Harvard). B. H. M. Vlekke's *Story of the Dutch East Indies* (Harvard) is written in a more popular vein than his earlier *Nusantara.* Works which seek to explore the historical background of problems now prominent include L. K. Rosinger's *China's Wartime Politics, 1937-1944* (Princeton), *Korea and the Old Orders in Eastern Asia* (Louisiana State) by M. F. Nelson, and J. F. Embree's *Japanese Nation, a Social Survey* (Farrar & Rinehart).

WAR BOOKS

By Kathrine Oliver Murra
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INTRODUCTORY

The personal narrative represents the bulk of the 1945 output of war books. Those writers who could obtain release from pent-up emotions and tension by recording their experiences seem to have done so. Only in wartime could so many personal narratives find a receptive audience because only in wartime can so many readers identify a particular soldier or pilot, sailor or submariner with the author's experience. Much time and much scarce paper has been used for deploring the lack of literary merit and enduring qualities of these personal narratives. However, it seems as inappropriate to apply the criteria for great literature to war books written during or immediately after the war as to apply them to a newspaper account of a murder. The required essential of literary style is that the writing shall not impede the narrative. The story is important and not the medium or the interpretation of the events narrated. If a personal narrative imparts a feeling of authenticity, tells the story, conveys the picture, be it of men or ships or planes, it is adequately told and serves its chief purpose—that of shortening the distance between battle front and home front. The book itself need not live beyond the year although the tale may some day be a part of the epic literature of the nation. It is not deplorable, therefore, that these personal narratives seldom have the enduring qualities of great literature. Considering the lack of opportunity for distilling emotions through a period of tranquility and the fact that most of the authors are either novices or journalists, the restraint which tempers the record of so many of these narratives is both surprising and commendable.

WAR IN THE AIR

The experiences of some top-ranking aces in Europe from November, 1943 through D-Day, is the subject of *Fighters Up* (Macrae-Smith). *Combat in the Air* (Appleton-Century) is an anthology of the experiences of many able correspondents such as W. L. White and Eric Sevareid.

Two books of air war in the Far East which share the distinction of being informative without being particularly interesting are Alice Rogers Hager's *Wings for the Dragon* (Dodd, Mead); and Hobert Douglas Skidmore's *More Lives Than One* (Houghton Mifflin).

A detailed account of early fighting over New Guinea is *Big Distance* (Duell, Sloan, and Pearce) by Donald Hough and Elliott Arnold. Hugh Cave relates the saga of "Bus" Miller's Liberator squadron sinking 66 Japanese vessels and 15 enemy planes in eight months (*I Took the Sky Road,* Dodd, Mead).

The Air Transport Command is described in prose by Hugh Cave (*Wings Across the World,* Dodd, Mead) and in pictures by Ivan Dimitri (*Flight to Everywhere,* Whitlesey House).

Two Hundred Thousand Flyers: The Story of the Civilian AAF Pilot Training Program (Infantry Journal), self-consciously reviews the splendid work of the Aeronautical Training Society.

Lois and Don Thorburn tell a story of the fighting in the Aleutian Islands in 1942 with the PBY's as heroes and the weather as the villain (*No Tumult, No Shouting,* Holt).

WAR ON THE SEA

One of the most spectacular phases of naval warfare has been the part played by aircraft carriers. A well illustrated general view of carrier action is given by Oliver Jensen in *Carrier War* (Simon and Schuster) covering operations of Task Force 58 including the *Essex* and the *Yorktown.* Typical routine relationships between captain and crew aboard a carrier are illustrated by Morris Markey's story of the *Essex, Well Done!* (Appleton-Century). A vivid account of the gnawing suspense of an entire ship awaiting the return of its pilots from a dangerous mission is told describing the *U. S. S. Lexington,* Vice Admiral Mitscher's flagship, in *Mission Beyond Darkness* (Duell, Sloan, and Pearce).

Fletcher Pratt expertly transmits A. L. Abercrombie's experiences on the *Drayton* in *My Life to the Destroyers* (Holt). The "B" gun crew on the British destroyer *Skye,* participating in the defense of Malta, in 1942, is the protagonist of *Lower Deck* (Macmillan).

The *S. S. Booker T. Washington,* with Negro and white crew members under a Negro captain, and described by the great grandnephew of Harriet Beecher Stowe (*All Brave Sailors,* L. B. Fischer), is unique but proves little as far as race relations in the services go.

The contribution of the Coast Guard is epitomized in an anthology of true stories from many zones of combat (*Sea, Surf, and Hell,* Prentice-Hall).

In *From Omaha to Okinawa* (Dutton), William Bradford Huie continues the swashbuckling description of the miracles performed by the Seabees which he began in *Can Do* (Dutton).

Three volumes personifying ships are: Joseph Leeming's *Brave Ships of World War II* (Nelson); the Cornell Maritime Press' 1038-page Warships *of the World,* a useful supplement to *Jane's Fighting Ships* in less technical form; and a juvenile reference work by Critchell Rimington, *This Is the Navy* (Dodd, Mead).

WAR UNDER THE SEA

The whereabouts of submarines, during the war, were not public information in the press or on the radio to the extent that the less easily concealed actions of surface ships were. Thus, the accounts of these monsters of the deep which can now be told have the added attraction of new information. *Silversides* (Holt) does not have to rely on its "now it can be told" appeal to rate as a top-notch war story. Robert Trumbull, author of *The Raft* (Garden City), has adroitly recorded the daily and nightly routine of this ship which sank 60,000 tons of enemy shipping and is credited with having damaged some 35,000 more.

Like the story *Silversides,* Robert J. Casey's *Battle Below* (Bobbs-Merrill) has been held up by the censors since 1943. In it will be found some of the tall stories of submarine warfare as well as many true ones.

The radioman of *Seawolf,* sister ship of the ill-fated *Squalus,* tells convincingly and without embellishment the story of his ship in *U. S. S. Seawolf* (Putnam).

A different kind of submarine experience, with a single mission overshadowing its war routine, is the story of *H. M. S. Seraph,* which took Gen. Mark Clark to a secret conference with General Giraud in North Africa prior to the invasion (*Secret Mission Submarine,* Ziff-Davis).

EUROPE

The overall picture of war in the ETO is memorably recorded in several accounts which have no more in common than their subject and their semi-pictorial form. John Groth's *Studio Europe* (Vanguard) is an admirable job of bookmaking and combines beautifully written anecdotal narrative with excellent drawings which give it a place in the more permanent records of the war. A cartoonist worthy to rank with Groth in artistic achievement, but of another sort, is Bill Mauldin who has, in *Up Front* (Holt), indelibly defined the life of the infantryman in his sardonic and bitter text and cartoons of dog-faced Willie and Joe. In a lighter vein Dave Breger continues the peregrinations of Private Breger in "GI Joe" (Blue Ribbon).

Superlative reporting with a lightness of touch unhampered by his age and five years of the war in Europe, is that of Robert J. Casey in *This Is Where I Came In* (Bobbs-Merrill). In marked contrast is the report of dogmatic H. V. Kaltenborn who in five weeks developed the theses he took with him to Europe (*Europe Now,* Didier).

The war of intelligence achieved new heights of technical skill and intrigue as Kurt Singer shows in *Spies and Traitors of World War II* (Prentice-Hall).

Reading the collected broadcasts, *From D-Day through Victory in Europe* (Columbia Broadcasting System), detracts nothing from the praise already bestowed on the superior reporting of the radio commentators in this war.

Logistics has been a fascinatingly incomprehensible operation to most civilians so that explanation of the operations of the Services of Supply in *48 Million Tons to Eisenhower* (Infantry Journal) is welcomed.

FRANCE

What happened in occupied France has been clarified by a number of 1945 war books. Gertrude Stein's *Wars I Have Seen* (Random House) is less ephemeral than most war books, partly because it is Stein, partly because it is a better than average Stein, and partly because of the sense of personal participation in daily life in occupied France which it imparts.

The facts revealed by Charles Odic, a Catholic physician in Paris, in *"Stepchildren" of France* (Roy) would be sufficient to sear the mind and heart of any reader without the rhetorical questions and literary ringing of hands which are its embellishment.

Two pictures of the French underground which are similar in incident but dissimilar in handling are David Prosser's discerning *Journey Underground* (Dutton) and Bierne Lay's exciting *I've Had It* (Harper).

Before the French underground was in effective operation, Varian Fry was using every conceivable means which the Emergency Rescue Committee could devise between August, 1940, and September, 1941, to effect the escape of certain known political and intellectual refugees from France (*Surrender on Demand,* Random House).

SPAIN

One explanation of Carlton Hayes' controversial diplomacy in Spain is presented at last in his *Wartime Mission in Spain, 1942-1945* (Macmillan). The role of the exiled Spanish Republicans in the world fight for freedom is stirringly delineated by Isabel de Palencia in *Smouldering Freedom* (Longmans, Green).

MEDITERRANEAN THEATER

Two accounts of getting supplies to Tito's Partisans were published in 1945—Bernstein's *Keep Your Head Down* (Viking) and Louis Huot's *Guns for Tito* (L. B. Fischer).

An American-born, Catholic woman writing under the name of Jane Scrivener reveals much of the daily life in Rome during the German occupation, September, 1943, to June, 1944 (*Inside Rome with the Germans,* Macmillan); and Sylvia Lombroso, an Italian Jewess, describes the plight of scientists and intellectuals in Italy in *No Time for Silence* (Roy).

A friend of Arnaldo Mussolini, son of the Duce, reviews his experiences as a correspondent for *Popolo d' Italia* in Berlin, Moscow, and Stockholm in *In the Wake of the Goose-step* (Ziff-Davis).

GERMANY

Urgent curiosity regarding everyday happenings inside Germany has nettled Allied civilians. One of the most revealing pictures of Nazi government officials just prior to their complete collapse is in the English translation of Count Bernadotte's notes entitled *The Curtain Falls* (Knopf). A collection of Nazi decrees and quotations from German newspapers and broadcasts will be found in Max Seydewitz's *Civil Life in Wartime Germany* (Viking).

Of three records of prisoners of war in Nazi camps, the most objective, illuminating, and informative is Guy Morgan's *P. O. W.* (McGraw-Hill). Lowell Bennett, as a prisoner in the Berlin area from 1943 on, gives some critical impressions of area bombing in *Parachute to Berlin* (Vanguard). Alexander Janta, a Pole masquerading as a Frenchman, writes of the second phase of his captivity in *Bound with Two Chains* (Roy).

Without self-dramatization, a pilot of a British glider recounts his reactions to nine days in German territory in *Arnhem Lift* (Farrar & Rinehart.)

No account of "inside Nazi Germany" is complete without one of the collections of nauseatingly revolting photographs of extermination centers such as *This Must Not Happen Again* (Howell, Soskin).

POLAND

Anna Louise Strong presents the first eye-witness account of an American of the 1943 battle of Warsaw and gives a critique of the new government which will undoubtedly stimulate further controversy. Personal narratives showing commendable restraint and coherence are: Adolf Folkmann, *The Promise Hitler Kept* (Roy); *No Traveler Returns* (Doubleday, Doran), the 1943 battle of the Warsaw ghetto by Henry Shoskes; *Call Us to Witness* (Ziff-Davis), the captivity of two American Methodist missionaries; Ada Halpern's *Conducted Tour* (Sheed and Ward); and Mary Berg's grim four-year diary, *Warsaw Ghetto* (L. B. Fischer).

RUSSIA

The Russian enigma does not lack interpreters. It is probably too much to expect full information and objectivity in reports on this provocative country. Only the tireless searcher after truth who perseveringly reads all accounts and all points of view will achieve anything approximating understanding. For such a seeker the following are suggested: Richard Lauterbach's *These Are the Russians* (Harper); W. L. White's *Report on the Russians* (Harcourt, Brace); Edgar Snow, *The Pattern of Soviet Power* (Random House); David Dallin, *The Real Soviet Russia* (Yale Univ. Press); Ella Winter, *I Saw the Russian People* (Little, Brown); Edmund Stevens, *Russia Is No Riddle* (Greenberg).

MIDDLE EAST

One of the serious and least understood trouble zones of the world is the Middle East. *The Arab Island* by Freya Stark (Knopf) and *Trouble Zone* (Ziff-Davis) by Leon Dennen relate the seething war years to the long and turbulent history of the area.

The colorful but seldom told story of getting supplies to the Russians is the theme of *Persian Gulf Command* (Random House).

PACIFIC ISLANDS

With the waters of the Pacific red with the blood of America's youth from New Guinea to Tokyo, it is to be expected that there should be a deep and personal interest in the battles of the Pacific Islands. Emphasis on the fight against nature in New Guinea is Osmar White's theme in *Green Armour* (Norton). Much of the island warfare is a history of the U. S. Marines as the following list shows: *A Ribbon and a Star* (Holt), the Third Marine Division at Bougainville; *Betio Beachhead* (Putnam); *The Battle of Kwajalein Atoll* (Infantry Journal), experiences of the Seventh Infantry Division; Robert Sherrod's convincing, straight-forward account of the battles of Tarawa, Saipan, Iwo Jima, and the landing at Okinawa in *On to Westward* (Duell, Sloan, and Pearce); and *The U. S. Marines on Iwo Jima* (Dial).

George Tweed's two and one half years' experience dodging the Japanese on Guam is told by Blake Clark in *Robinson Crusoe* (Whittlesey House).

The novelist and former editor of *Fortune,* Green Peyton, reviews amphibious operations in the Pacific in *5,000 Miles Towards Tokyo* (University of Oklahoma Press).

Two fine illustrative volumes of life in the Pacific Islands are Cedric Emanuel's *Southwest Pacific Sketch-*

book (Prentice-Hall), a wartime travelogue of New Guinea by a flight officer of the Royal Australian Air Force, and Tom Lea's limited edition of *Peleliu Landing* (Carl Hertzog).

CHINA-BURMA THEATER

China is no less an enigma than Russia, though for different reasons, and there are as many and as varied interpretations being offered for her as for Russia. Books mentioned here fall into two groups: personal narratives of fighting in China and works on her governments, her peoples, and her problems.

In the first group, Mark Tennien, a Maryknoll Father, vividly relates his experiences in keeping the Catholic missions operating throughout the war (*Chunking Listening Post,* Creative Age Press). Three accounts of prisoners of the Japanese are Quentin Reynolds' *Officially Dead* (Random House), the story of Commander C. D. Smith; Edna Booker's and John Potter's story, *Flight from China* (Macmillan); and Robert S. Ward's searching analysis of Japanese occupation methods in *Asia for the Asiatics* (University of Chicago Press). Contributions to better understanding of China and her problems are: Gunther Stein, *The Challenge of Red China* (McGraw-Hill); Harrison Forman's *Report from Red China* (Holt); Lin Yu-T'ang's somewhat superficial *The Vigil of a Nation* (Day); Pan Chao-Ying, *An Inside Story of China's Long Struggle Against Our Common Enemies* (Revell); Robert Payne's *Forever China* (Dodd, Mead); and Martin C. Yang's *A Chinese Village* (Columbia Univ. Press).

The managing director of the Yunnan-Burma Highway Engineering Administration, in *The Building of the Burma Road* (Whittlesey House), tells one of the most dramatic construction stories in history.

Thomas Healy, a sophisticated Australian journalist on the staff of the *London Daily Mirror,* devotes much of *Tourist Under Fire* (Holt) to the war in Burma.

PHILIPPINE ISLANDS

For persons in a democracy there is something deeply appealing in the stand of Americans and Filipinos within Japanese-occupied territory in the Islands. Each of the stories cited here is thrilling, fast-moving, informative, and generally adequately written: Travis Ingham, *Rendezvous by Submarine* (Doubleday, Doran); Ira Wolfert, *American Guerrilla in the Philippines* (Simon and Schuster); Louise Spencer, *Guerrilla Wife* (Crowell); and Joseph St. John, *Leyte Calling* (Vanguard).

DOCTORS, NURSES, AND THE RED CROSS

Some sardonically merciful trick of fate seems to spur man's knowledge of human reconstruction in the midst of catastrophic destruction. This is shown by the following accounts of the perfection of miraculous new drugs, the development of superb techniques of surgery and care, the invention of new instruments, and the deeper and more successful exploration of therapies for shattered minds: *Doctors at War* (Dutton), edited by Morris Fishbein; *Out of Carnage* (Howell, Soskin); *Men without Guns* (Blakiston), a splendid pictorial history of doctors at war; *Mob 3, a Naval Hospital in a South Sea Jungle* (Bobbs-Merrill); *Air Commando Doc* (Ackerman); *It's Good to Be Alive* (Dodd, Mead); *We Are the Wounded* (Dutton); *G. I. Nightingale* (Norton); *At His Side, the Story of the American Red Cross* (Coward-McCann); and three reports from psychiatrists—John R. Rees, *The Shaping of Psychiatry* (Norton), Abraham Meerloo's *Total War and the Human Mind* (International Universities Press), *Men Under Stress* (Blakiston).

CHAPLAINS

A very human and admirable group of men who have rendered distinctive and courageous service on all battle fronts are the chaplains whose records are set forth in the following: Thomas H. Clare, *Lookin' Eastward,* *a G. I. Salaam to India* (Macmillan); Frederick C. Proehl, *Marching Side by Side, Stories from Lutheran Chaplains* (Concordia Publishing House); Hansel H. Tower, *Fighting the Devil with the Marines* (Dorrance); Christopher Cross, *Soldiers of God* (Dutton); and Archbishop Francis J. Spellman's account of his tour of European battle fronts in *No Greater Love* (Scribner).

HISTORIES

A slim trickle of histories has supplemented the 1945 output of personal narratives: Henry Steele Commager's *The Story of the Second World War* (Little, Brown); Gordon Carroll's *History in the Writing* (Duell, Sloan, and Pearce); Waverly Root's *Secret History of the War* (Scribner); Francis Trevelyan Miller's *History of World War II* (Winston); Edgar McInnis, *The War, Fifth Year* (London, Oxford Univ. Press); and a pictorial review in U. S. Camera for 1945, *The U. S. A. at War* (Duell, Sloan, and Pearce).

GENERAL MARSHALL'S REPORT

The cornerstone of source material for any history of the United States in the Second World War will be, for years to come, Gen. George C. Marshall's penetrating résumé of our participation in that war and his recommendations for an adequate post-war military policy, *The Winning of the War in Europe and the Pacific; Biennial Report of the Chief of Staff of the United States Army* (Simon and Schuster).

BIOGRAPHY

By Malcolm O. Young
Reference Librarian, Princeton University

GENERAL

The popular radio reviewer of books, John T. Frederick, in *The Rotarian* for April 1945 devotes an article to biography and autobiography. He mentions the recent outstanding ones, gives advice on purchase and reading in the field, and makes this statement: "I sometimes think we're living in a 'golden age' of biography. Certainly very many fine biographies and autobiographies are appearing." All this is quite true. The modern biography has little resemblance to the majority of the three-volume chronicles of the 19th century. Especially is this noticeable in the increasingly popular tide here listed as "Informal." The Pulitzer Prize was awarded in May to *George Bancroft: Brahmin Rebel,* by Russel B. Nye, the choice causing some surprise though it was not an unworthy one.

Here we list the few collective works of 1945. Attracting considerable attention was Sheldon Cheney's *Men Who Have Walked with God* (Knopf), the story of seers and saints of all ages. Also published was *In Spite of All* (Abingdon) by Archer Wallace, presenting the lives of ten who overcame handicaps. This number includes, among others, Beethoven, Spinoza, Madame Curie. *The Story of the Great Geologists* (Doubleday), by Carroll L. Fenton and Mildred A. Fenton, is a well balanced volume of science and biography.

PRESIDENTS

A well received and timely book is *Generals in the White House* (Doubleday) by Dorothy and Julius Goebel, Jr., surveying nine of our Chief Executives. Claude G. Bowers has completed, in reverse, his trilogy with *The Young Jefferson, 1743-1789* (Houghton Mifflin) finishing one of the more important biographical works. Another highly rated production is *The Age of Jackson* (Little, Brown) by Arthur M. Schlesinger, Jr., centered, of course, around Andrew Jackson.

A monumental compilation is Jay

Monaghan's *Lincoln Bibliography* (Ill. State Historical Library), listing material published on Lincoln from 1839 to 1939. The same author's *Diplomat in Carpet Slippers* (Bobbs, Merrill) deals with Lincoln's foreign policy. *Intimate Memoirs of Lincoln* (Elmira, N. Y., Primavera Press) is a large volume compiled by Rufus R. Wilson. *A House Dividing* (Springfield, Ill., Abraham Lincoln Association) is concerned with Lincoln as President-elect, by William E. Baringer. A scholarly production is J. G. Randall's *Lincoln the President* (Dodd, Mead), in two volumes, covering the years from Springfield to Gettysburg.

William Howard Taft: Yale Professor of Law and New Haven Citizen (Yale Univ. Press) is by Frederick C. Hicks. The Wilson bibliography is enlarged by several works. H. F. C. Bell has written an analysis in *Woodrow Wilson and the People* (Doubleday). Thomas A. Bailey's *Woodrow Wilson and the Great Betrayal* (Macmillan) is a sequel to his *Woodrow Wilson and the Lost Peace*. Ruth Cranston's *Story of Woodrow Wilson* is a general survey of the subject's whole life.

Very soon after the death of President Roosevelt, appeared *Franklin Delano Roosevelt, A Memorial,* edited by Donald P. Geddes (Pocket Books), later somewhat expanded and published by the Deal Press. *The Real Franklin Delano Roosevelt* (Citadel Press) is a compilation of biography, pictures, and selections of Roosevelt's writings, by Clark Kinnaird. *This Man Truman* (Whittlesey) is by Frank McNaughton and Walter Helmeyer. The President is also the subject of Cyril Clemens' *The Man from Kansas* (International Mark Twain Society).

POLITICAL AND JUDICIAL FIGURES

Seargent S. Prentiss (Louisiana State University Press), by Dallas C. Dickey, is a portrait of the Whig orator of the Old South, lawyer and Congressman from Mississippi. *The Best Is Yet* (Harper) is the autobiography of Morris Ernst, the present day lawyer and reformer. *The Fighting Liberal* (Macmillan) is the apt title of George W. Norris' autobiography. Former Under-Secretary of State, J. M. Huntington Wilson, writes *Memoirs of an Ex-Diplomat* (Bruce Humphries). An appreciative portrait is *Al Smith, American* (Putnam) by Frank Graham. *Chief Justice Stone and the Supreme Court* (Macmillan) is a study by Samuel J. Konefsky.

MILITARY FIGURES

"First with the Most" Forrest (Bobbs, Merrill) by Robert S. Henry, chronicles the career of Gen. Nathan B. Forrest of the Confederate Army. *Fighting Joe Hooker* (Bobbs, Merrill) by Walter H. Hebert, and *War Years with Jeb Stuart* (Scribner) by William W. Blockford, further portray action in the same war. A picturesque character of the Civil War and later, is portrayed by Edgcumb Pinchon: *Dan Sickles* (Doubleday). Still another Civil War personality is the subject of *Belle Boyd; Confederate Spy* (Dietz) by Louis A. Sigaud. *Old Weatherface of the Flying Tigers* (Bobbs, Merrill) by Keith Ayling, is of course, the career of Gen. Claire L. Chennault. Another aviator, Robert Lee Scott, author of *God Is My Co-Pilot,* now writes of his earlier life in *Runaway by the Sun* (Scribner). *Soldier of Democracy* (Doubleday) is the well reviewed record of Gen. Dwight D. Eisenhower, by Kenneth S. Davis.

EDUCATORS, DOCTORS, AND OTHERS

Theodore Maynard has written of Mother Cabrini, recently canonized, in his *Too Small a World* (Bruce). The founder of the Sisters of the Holy Cross in America, Mother Angela Gillespie, is the subject of Anna S. McAllister's *Flame in the Wilderness* (Paterson, N. J., St. Anthony Guild Press). That worker for good, Frances Willard, is portrayed by Mary Earhart (Univ. of Chicago Press). *Music Master of the Middle West* (Univ. of Minnesota Press) by Leola N. Bergmann, presents Frederick B. Christiansen, music teacher and founder of famous choirs. A professor of philosophy, John M. Mecklin, titles the story of his pilgrimage, *My Quest for Freedom* (Scribner). A professor of law, Charles P. Sherman, recalls his career in *Academic Adventures* (New Haven, Tuttle). A stimulating book is by Esther C. Dunn, Professor of English, *Pursuit of Understanding* (Macmillan). *Poor Man's Doctor* (Prentice) by Lewis R. Tryon, carries the reader through his early Pennsylvania days, the First World War, and adventures as a ship's doctor. *Way of an Investigator* (Norton) covers the scientific research of half a century by Walter B. Cannon.

AUTHORS AND THE PRESS

More evidence of the recent interest in Paine is in W. E. Woodward's volume *Tom Paine* (Dutton), in the nature of a defense. Also, the revival of interest in Melville continues in William Ellery Sedgwick's *Herman Melville: The Tragedy of Mind* (Harvard Univ. Press). A biographical and critical essay on Thoreau is *Walden Revisited* (Packard) by George F. Whicher. Emily Dickinson continues to be the center of controversy in Millicent Todd Bingham's *Ancestor's Brocades* (Harper).

North Star Editor (King's Crown) is a sketch of the St. Paul newspaperman, Joseph A. Wheelock, by Richard B. Eide. *A Man from Kansas* (Putnam) by David Hinshaw, is the biography of William Allen White of the *Kansas Star*. *The House of Europe* (Houghton Mifflin) is the story of the newspaperman, Paul Scott Mowrer, and his European travels up to the early '30's.

A very readable book is *American Chronicle* by Ray Stannard Baker, giving light on the muckrakers, and later, on Woodrow Wilson. Linnie M. Wolfe's book, *Son of the Wilderness* extols John Muir, naturalist, conservationist, and writer. Two other westerners have written their reminiscences: Harvey Fergusson in his *House in the West* (Duell) and Marquis James in *The Cherokee Strip* (Viking), a pleasant portrait of an Oklahoma boyhood.

My Wayward Parent (Bobbs, Merrill) is Elizabeth Cobb's informal picture of her father, Irvin S. Cobb. A vivid portrayal of an amazing individual is Samuel Hopkins Adams' *Alexander Woollcott, His Life and His World* (Reynal). Including some of the same group as found in the previous volume is *All Our Lives* (Coward) by Henry Wise Miller, husband of the late Alice Duer Miller. The Canadian poet Robert Service, so well known in the United States, entitled his memoirs *Ploughman of the Moor* (Dodd, Mead).

The Middle Span (Scribner) is the second volume of George Santayana's autobiographical work in progress. *So Far, So Good* (Messner) is a book of genial reminiscences by the New York editor and author, Charles Hanson Towne.

An agreeable sketch of himself and his ancestors is Henry Seidel Canby's *Family History* (Houghton Mifflin). Oliver LaFarge's *Raw Material* (Houghton Mifflin) is a frank self revelation. One of the most talked of books is *Black Boy* (Harper), the earlier memories of Richard Wright.

ACTORS, MUSICIANS, ARTISTS

Joseph Jefferson is the center of *Good Troupers All* (Macrae-Smith), by Gladys Malvern. *Rolling Stone* (Whittlesey) is the good title for Fred Stone's reminiscences. *There Goes an Actor* (Doubleday) is the autobiographical work of Alexander Granach who died during the year. The entertaining Sophie Tucker recalls her past in *Some of These Days* (Doubleday). Another popular volume is *A Star Danced* (Doubleday) by Gertrude Lawrence. Ruth Hunter's *Come Back Tuesday* (Scribner) is an account of a young actress' struggles.

Victor Herbert's life is chronicled by Claire L. Purdy (Messner). Dorothy Caruso presents a worthy picture of her husband in *Enrico Caruso* (Simon & Schuster). *Frank Damrosch* (Duke Univ. Press) is by Lucy B. Stebbins and Richard P. Stebbins. *Bad Boy of Music* (Doubleday) is the title chosen by George Antheil for his recollections.

The 19th century painter, William Sidney Mount, is studied by Bartlett Cowdrey and Hermann W. Williams, Jr. (Columbia Univ. Press). E. A. Burbank and Ernest Royce have collaborated in writing in *Burbank Among the Indians* (Caxton), the painter's life and adventures.

INFORMAL PORTRAITS

This type of writing continues to be popular and incidentally furnishes sidelights on various corners of American life. We can include here *Party Line* (Whittlesey) small town life by Louise Baker. *Jam Yesterday* (Morrow), Kathleen Cannell's story of family life in the '90's. Also, with Pennsylvania as the scene, *God Bless Our Aunts* (Whittlesey) by Rachel Meisenhelder. *The Egg and I* (Lippincott) amusingly reveals life on a Washington poultry ranch, by Betty MacDonald. A picture of an inventor-father and his family is *Wheels in His Head* (Whittlesey) by M. M. Musselman. A Maine sea captain and "character" is vividly drawn in *Uncle 'Lish* (Knopf) by Ralph Frye. Rather more serious is *Country Chronicle* (Duell), the reminiscences of a rural postmaster, Herman Petersen.

FOREIGNERS IN AMERICA

A very early comer from Russia was Demetrius Gallitzin, who arrived in 1792, became a missionary priest in western Pennsylvania, and the subject of a book by Daniel Sargent (Longmans). In 1889 came from Lithuania, Goldie Stone, whose *My Caravan of Years* (Bloch) recalls her philanthropic activities. *This, Too, Shall Pass Away* (Creative Age) is the story of George Rony's flight from Russia and his life here. A pleasant volume is *Anything Can Happen Here* (Harper), the rather informal memories of George and Helen Papashvily, the former an immigrant from Russia. *I Ask You, Ladies and Gentlemen* (Dutton) is the sometimes tragic, sometimes whimsical career of Leon Z. Surmelian, of Armenian origin. Joseph Wechsberg's, *Looking for a Bluebird* (Houghton Mifflin) is a series of sketches descriptive of the author's life in his native Prague and as a new American citizen. In *My American Adventure* (Ives Washburn), Erna Barshack relates her impressions of us since her arrival from Berlin.

MISCELLANEOUS SUBJECTS

The 18th century Pennsylvania frontier is the setting for Paul A. W. Wallace's *Conrad Weiser: Friend of Colonist and Mohawk* (Univ. of Pennsylvania Press). Another bit of Americana is found in *Three Bricks and Three Brothers* (Nantucket Whaling Museum), the story of Joseph Starbuck of the whaling days, written by Will Gardner. North Carolina life from the '50's to the '80's is the background for Kemp P. Battle's *Memoirs of an Old-Time Tar Heel* (Univ. of North Carolina Press). *The Builders of the Bridge* (Harcourt) by D. B. Steinman, concerns John and Washington Roebling. The pioneer of American labor, William Sylvis, is studied by Jonathan Grossman (Columbia Univ. Press). In *Seaman A. Knapp* (Columbia Univ. Press), Joseph C. Barley portrays the 19th century agriculturist educator.

Two figures from the sports are found in Col. Matt J. Winn's reminiscent *Down the Stretch* (Smith & Durrell), and in Margery Miller's *Joe Louis: American* (Current Books).

Pictures on My Wall: A Lifetime in Kansas (Univ. of Kansas Press) is by Florence L. Snow. Life in the Ozarks is pleasantly told by Charlie May Simon in *Straw in the Sun* (Ozarks). Memories of Southern life are well set down in Martha Byrd Porter's *Straight down a Crooked Lane* (Dietz). *Guerrilla Wife* (Crowell) is the narrative of the war years in the Philippines, by Louise R. Spencer. Wanderings as salesman of linotypes are chronicled in Reginald Orcutt's *Merchant of Alphabets* (Doubleday). *No Man Knows My History* (Knopf) by Fawn M. Brodie, is the life of Joseph Smith, the Mormon prophet. *Under Orders* (R. R. Smith) is the spiritual pilgrimage of William

L. Sullivan, formerly a Catholic. Colorful wanderings are narrated by Harry Miller in his *Footloose Fiddler* (Whittlesey). The group concludes with the recollections of a fashionable hair dresser, *Antoine* (Prentice-Hall).

FOREIGN

Milton Waldman's *Elizabeth and Leicester* (Houghton Mifflin) surveys these two individuals and their relationship. The *Life of Edmund Spenser* (Johns Hopkins Univ. Press) is by Alexander C. Judson. Biographical and critical is George Kahrl's *Tobias Smollett, Traveler-Novelist* (University of North Carolina Press). *A Fellow of Infinite Jest* (Prentice-Hall) by Thomas Yoseleff, deals with Lawrence Sterne.

Teresa, or Her Demon Lover (Scribner) is the title which Austin K. Gray chose for his book on Byron's mistress, Countess Guiccioli. A considerably revised edition of Newman I. Whites' *Portrait of Shelley* is published by Knopf, and Robert Metcalf Smith has produced a scholarly book, *The Shelley Tradition* (Scribner). *The Lambs* (Knopf), by Katherine Anthony, tells of Charles and Mary. A needed work is *The Trollopes* (Columbia Univ. Press) by Lucy P. Stebbins and Richard P. Stebbins.

Life and Work of John Tyndall (Macmillan) is by A. S. Eve and C. H. Creasey. Rhoda Truax is author of *Joseph Lister: Father of Modern Medicine* (Bobbs, Merrill). *Victoria through the Looking Glass* (Simon and Schuster), by Florence B. Lennon, is concerned with the versatile Charles Dodgson. *John Henry Newman* (Sheed) is by John Moody. *William Ernest Henley* (Princeton Univ. Press) is by Jerome H. Buckley.

The *Lives of Winston Churchill* is an anecdotal work by John Davenport and C. J. V. Murphy. *This Man from Lebanon* (Knopf) by Barbara Young is the picture of the Syrian mystic poet Gibran. Phil Stong has found a vivid figure in *Marta of Muscovy* (Doubleday), wife of Peter the Great.

Two excellent works are Alfred Einstein's *Mozart, His Character, His Work* (Oxford), and Robert Haven Schauffler's *Florestan* (Holt) which is about Robert Schumann. *William the Silent, Prince of Orange* (Yale) is presented by C. F. Wedgwood. *Voltaire: Man of Justice* (Howell) is by Adolph Meyer.

The Life of the Heart (Harper) is by the popular Frances Winwar, and deals with George Sand and her times. Two other French subjects are found in *Baudelaire* (Princeton Univ. Press) by Joseph D. Bennett, and *The Career of Victor Hugo* (Harvard Univ. Press) by Eliot M. Grant.

The Brazilian crusader for freedom, Ruy Barbosa, is recalled by Charles W. Turner (Abingdon). Two works on Pius XII have appeared, one by Charles H. Doyle (Didier), the other by Kees Van Holk (Philosophical Library). A reverent and well received writing by John Erskine is *The Human Life of Jesus* (Morrow).

TRAVEL

By Kathrine Oliver Murra

General Reference and Bibliography Division, Library of Congress

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INTRODUCTORY

The wartime trickle of travel books was showing signs of becoming a fair-sized stream by the end of 1945. The major output dealt with regions and waterways of the United States. Several standard series, such as the Rivers of America, added one or more new titles or new editions, and a number of cities were sketched in words or pictures. Many of the books, listed under the subject, "War Books"—Cedric Emanuel's *Southwest Pacific Sketch Book* (Prentice-Hall), for example—might just as correctly have been included here.

NEW ENGLAND

Six different approaches to this region bear witness to its unending charm and rich history. George Marlowe cracks the whip for a present-day journey over the old coaching roads, from Portsmouth to New York, and fills each inn and tavern along the way with folk-lore, history, legend, and anecdote (*Coaching Roads of Old New England,* Macmillan). The lighthouses which dot the coast have yielded Edward Snow a wealth of stories which he shares in *Famous New England Lighthouses* (Yankee Publishing Co.). The heritage of American democracy is traced in another of Erskine Caldwell's series of American Folkways, *Town Meeting Country* (Duell, Sloan, and Pearce) by Clarence Webster.

Three volumes to lure the traveler and the settler to Maine are the humorous, well-written experiences of Helen Hamlin in the deep woods near Churchill (*Nine Mile Bridge,* Norton); the beautiful photographs in *The Nature of Maine* by Marion J. Bradshaw; and a collection of gravure illustrations, *Land of Enchantment; the Penobscot Bay-Mount Desert Region of Maine* (Sugar Ball Press).

MIDDLE ATLANTIC STATES

Two excellent photographic studies of New York City are Weegee's *Naked City* (Essential Books) which portrays the seamier side of "the four million," and Andreas Feininger's *New York* (Ziff-Davis), a well-balanced selection.

According to the enthusiastic author of *Jersey Genesis* (Rutgers Univ. Press) the Mullica River about which he writes is "the most wonderful of the unrecognized rivers of America."

Two books of old houses which are largely pictorial are the volume sponsored by the American Institute of Decorators on *Georgetown Houses of the Federal Period, Washington, D.C., 1780-1830* (Architectural Book Publishing Company) and *Old Dutch Houses of Brooklyn* by Maud Esther Dilliard (R. R. Smith).

THE SOUTH

Two epics from this region have been added to the distinguished Rivers of America series. Blair Niles has revised and enlarged her work on *The James River* published in 1939 to include the Piedmont and Valley regions as well as the Tidewater (*The James from Iron Gate to the Sea,* Farrar & Rinehart). Julia Davis has given the Series the long, thrilling saga of an inland valley in *The Shenandoah* (Farrar & Rinehart).

Further travel in Virginia includes *Mansions of Virginia* (University of North Carolina), and the scholarly *Colonial Churches of Tidewater Virginia* (Whitlet and Shepperson) by George Carrington Mason.

A third edition of Samuel Gaillard Stoney's *Plantations of the Carolina Low Country* (Carolina Art Association), with many fine plates, is more complete for the period 1686-1878 than the first edition published in 1938.

Eldon Roark, columnist of the *Memphis Press-Scimitar,* has brought together in *Memphis Bragabouts* (Whittlesey House) some of the sketches of whimsical, colorful local characters which have adorned his reporting for many years.

Louisiana's lush folklore and history is the subject of two particularly notable volumes. Hartnett T. Kane, who has recorded many aspects of Louisiana life (*Louisiana Hayride*), reconstructs around the crumbling country mansions the life of the grand antebellum days that once were theirs in *Plantation Parade* (Morrow). Lyle Saxon (*La Fitte, the Pirate*) under the auspices of the Louisiana Writers' Program has brought together a truly marvelous collection of folk tales in *Gumbo Ya-Ya* (Houghton Mifflin).

MIDDLE WEST

The major contributions to the descriptive materials of this area are two new titles in The American Lakes Series published by Bobbs-Merrill and edited by Milo M. Quaife. The smallest of the Great Lakes, the poorest in commerce, and the richest in history is Lake Ontario, whose story is ably written for the Series by Arthur Pound. Prof. Harlan Hatcher of Ohio State University gives a scholarly presentation of the history and environs of Lake Erie in another volume for this Series.

The tenth volume in the series, The American Scene, is an anecdotal history, from pioneer times to the present, of the states of Wisconsin and Minnesota entitled *Pine, Stream & Prairie* (Knopf) by James Gray.

The last volume in Rivers of America series is Stanley Vestal's *The Missouri* (Farrar & Rinehart), which captures both the turbulence of the river and the tumult of its valley's history.

A book candidly labeled "a success story," but nonetheless informative and interesting, is Carl Crow's *The City of Flint Grows* (Harper).

The Chicago Tribune columnist, Marguerite Lyon, while describing many local customs in the Ozark Mountains in *Fresh from the Hills* (Bobbs-Merrill), reminds one somewhat of a professional "slummer."

THE WEST

Volume three of the American Mountain Series, edited by Roderick Peattie, is *The Rocky Mountains* (Vanguard) written by Wallace W. Atwood, distinguished geographer and president of Clark University. Another mountain range, whose story is well told by Robert Ormand Case and Victoria Case, is *Last Mountains, the Story of the Cascades* (Doubleday, Doran).

A new edition of the American Guide Series volume for New Mexico has been published by the University of New Mexico Press, the first edition having been published in 1940 by Hastings House.

A delightful travelogue of a state about which there has been too little information is *This Is the Place, Utah* (Knopf) by Maurine Whipple.

Ladd Haystead is a discerning romantic when it comes to the "golden west" of which he writes in *If the Prospect Pleases, the West the Guidebooks Never Mention* (University of Oklahoma Press).

There are three contributions of note for California: Anne B. Fisher's *The Salinas, Upside-down River* (Farrar & Rinehart, the Rivers of America); Gertrude Atherton's *Golden Gate Country* (Duell, Sloan, and Pearce), in Folkways; and Julia Altrocchis *The Old California Trail* (Caxton).

CANADA AND ALASKA

Louisa W. Peat presents a very satisfactory travelogue of wartime Canada in *Canada, New World Power* (McBride).

By all standards the best of a number of travel books on Alaska issued in 1945 is Henry Varnum Poor's *Air Artist Sees Alaska* (Viking) with its beautiful prose and vivid illustrations. The remainder of the Alaska crop is well represented by: Helen Wheaton's *Prekaska's Wife, a Year in the Aleutians* (Dodd, Mead); George Sundborg, *Opportunity in Alaska* (Macmillan); Constance Helmericks, *We Live in Alaska* (Garden City); George L. Hall's *Sometime Again* (Superior Publishing Co.).

THE BRITISH ISLES

Two volumes of more than ordinary importance have been written about parts of Ireland. Robin Flower, distinguished cataloguer of Irish manuscripts in the British Museum, has described the outskirts of Irish culture and folklore in *The Western Island, or the Great Blasket* (Oxford Univ. Press).

In *Lovely Is the Lee* (Dutton), by Robert Gibbings, the folklore, birdlore, fishing spots, and the Galway and Aran Isles are beautifully sketched in prose and drawings.

Travel in wartime England is intermingled with the happy memoir of the philosopher, J. Frank Dobie, in *A Texan in England* (Little, Brown). Fine colored plates illustrate the compilation of six essays on different aspects of country life written by six well-known British authors and edited by W. G. Turner (*A Panorama of Rural England,* Hastings House).

CONTINENTAL EUROPE

Noel Busch (*What Manner of Man,* and *My Unconsidered Judgment*), a correspondent for *Life,* has given a preview of early post-war travel in western Europe and England in *Lost Continent* (Harper).

Of four books on France two collections of photographs are the most satisfactory. The first is Andre Kertesz, *Day of Paris* (Augustin), with wonderful camera studies, and the second is Alexander Frenkley's photographic review of architectural monuments in *Stones of Glory, Stones of France* (International Universities Press). The story of the present-day city of Lourdes is told by Don Sharkey in *After Bernadette* (Bruce). Florence Gilliam, an American who has lived in France for the past 20 years, characterizes the Frenchman and the cultural heritage he offers all other peoples (*France,* Dutton).

Maurice Hindus has added another volume to his long list of discerning portraits of aspects of Russian life and Russian people in *The Cossacks* (Doubleday, Doran).

AFRICA AND THE FAR EAST

André Cauvin, the Belgian photographer who illustrates John Latouche's *Congo* (Duell, Sloan, and Pearce), has done for it an unusually fine piece of work. Eslanda Goode Robeson, wife of Paul Robeson, describes her experiences in South Africa, Kenya, Uganda, and the Congo in 1936 when she undertook to explore the primitive minds of members of her race in their native habitat (*African Journey,* Day). The prolific Attilio Gatti has this year written *South of the Sahara* (McBride). Another of J. J. Augustin's fine books in *Egypt,* a tour of the antiquities of the country, by George Steindorff with photographs by Hoyningen-Huene.

Santha Rama Rau, a young American-educated Brahman girl, charmingly and penetratingly tells of rediscovering her native land in *Home to India* (Harper). A little handbook intended to interpret India to outsiders is *The Land and the People of India* by Manorama R. Modak (Lippincott). Ernest Rathenau has photographed many peoples of the Far East, and Horst edited a collection of these photographs in *Orientals* (Augustin).

ISLANDS OF THE PACIFIC

A North American edition of R. W. Robson's valuable *Pacific Islands Handbook* has been published by Macmillan and represents a complete revision of the Australian editions.

The distinguished anthropologist, Felix M. Keesing, in revising his *The South Seas in the Modern World* (Day), has given particular attention to the effect of Japanese and Allied occupations of the Islands. Another anthropologist, Fay-Cooper Cole, has written *The Peoples of Malaysia* (Van Nostrand) which, in addition to scientific data, contains much on the life and customs of the natives today.

Stanley D. Portens describes the people, natural phenomena, and current problems of Hawaii in *Calabashes and Kings* (Pacific Books Publisher).

SOUTH AMERICA

Roland Hall Sharp has mingled politics and travel rather well in *South America Uncensored* (Longmans, Green) which he calls "a continent in search of frontiers." Peter Masten Dunne, of the University of San Francisco, stresses the importance of a knowledge of the Catholic tradition in Latin America for a better understanding of its problems in *A Padre Views South America* (Bruce). *Hasta la Vista* (Greenberg) is the brief record of a tour of 20,000 miles on the continent, including the major cities.

Botanical wanderings through the "orchid of the tropics" is the subject for a fascinating book with many fine plates by Milford and Racine Foster (*Brazil,* Cattell). Alice Rogers Hager, well-known newspaperwoman, and Jackie Martin, the photographer, have also told the story of *Brazil, Giant to the South* (Macmillan).

An amusing and detailed sketch of family life and customs in Venezuela is Olga Briceño's *Cocks and Bulls in Caracas* (Houghton, Mifflin).

BERMUDA AND CUBA

The eighth edition of the standard guide to Bermuda, *Beautiful Bermuda* (Bell), has just been published. Thomas Barbour, Custodian of the Harvard Biological Station and Botanical Garden at Soledad, Cuba, has interspersed general impressions of the scenery with more detailed information on the flowers, birds and animals in *A Naturalist in Cuba* (Little, Brown).

MEXICO

Frances Toor has combined material from her two earlier guides and brought all the information up to date as of 1944 in *New Guide to Mexico* (Crown). A photographic tour is provided by Fritz Heule in *Mexico* (Ziff-Davis). Cora M. Oneal describes *Gardens and Homes of Mexico* (Banks, Upshaw). How to set up housekeeping in Ajijic is delightfully told by Dane Chandos in *Village in the Sun* (Putnam). Maurice Hudson tells, without verve or sparkle, of *Mexico, Yesterday, Today, Tomorrow* (Dorrance).

CRITICISM AND BELLES LETTRES

By May Lamberton Becker
New York Herald Tribune

THE BRONTËS

Late in the year came an unexpected and distinguished contribution to our literary criticism, *Charlotte and Emily: The Brontës,* by Laura L. Hinkley, which with searching discernment marshalled before students of Brontë literature and the wider public of those who have invariably found anything about the Brontës exciting, all the evidence, conflicting as it has been, tending to establish a connection between the inner and outer lives of the four Brontës and the literature they left behind them. In this much needed assessment anything even approaching surmise is plainly so stated; this is the sort of vital scholarship greatly needed, especially in the case of the Brontë family genius.

SANTAYANA

George Santayana's *The Middle Span,* second volume of his autobiography begun in *Persons and Places* in 1944, covers his years in Germany as a student, his early visits to his beloved England, his returns to Spain as a young man, and his 30 years as teacher at Harvard. Figuring in these reminiscences are finely drawn portraits of personages in the academic world and in that of American literature.

HENRY JAMES

The recrudescence of interest in Henry James was heartily maintained. Critical discussion as in *Henry James: the Major Phase,* by Francis Otto Matthiessen, a monograph published late in 1944, gathered momentum in 1945, and the documentation of the movement was increased by *The Question of Henry James,* edited by F. W. Dupee, 26 of the most respected critical opinions of this widely discussed writer, including essays by T. S. Eliot, Van Wyck Brooks, Edmund Wilson, Max Beerbohm, André Gide, Joseph Conrad, and 20 others, and forming an excellent adjunct to the process of reappraisal now going on. A chronological selection of the *Short Stories of Henry James* from 1877 to 1909, was edited by Clifton Fadiman.

SCHUMANN

Robert Haven Schauffler's *Florestan* did for the music of Robert Schumann much the same sort of work of grace that Miss Hinkley did for the Brontës, in blending it so completely with his life that it can not fall out of his biography.

SCIENCE

A Grammar of Motives, by Kenneth Burke, approached the re-examination of semantics with fresh vitality, considering the subject in terms of drama rather than those of science by a method he calls "dramatism." The crash of the atomic bomb into world consciousness and the conscience of the world brought out one of the year's most distinguished editorials in the *Saturday Review of Literature,* "Modern Man is Obsolete," by Norman Cousins, later enlarged and published in book form.

BARZUN AND RILKE

Teacher in America, by Jacques Barzun, leaped the barriers of educational literature and gave the nation a thorough-going treatise on teaching as conducted in this country. Its wit, sagacity, and general brilliance put it in a class by itself. *The Letters of Rainer Maria Rilke, 1892-1910* was translated by Jane Bannard Green and M. D. Herter Norton.

THACKERAY AND TROLLOPE

The first two of a four-volume set of *The Letters and Private Papers of William Makepeace Thackeray,* edited by Gordon L. Ray, came out in a beautiful edition with reproductions of Thackeray's drawings and manuscripts. Lucy Poate Stebbins and Richard Poate Stebbins, a mother-and-son combination of biographers, brought off a group treatment of all writers, important and otherwise, of a noted writing family, in *The Trollopes.*

SHELLEY

The Shelley Legend, by Robert Metcalf Smith in collaboration with Martha M. Schlegel, T. G. Ehrsam and L. A. Waters, came as a carefully documented effort to do away with the reputation of Shelley as a "Victorian angel"—a reputation that some may think not so firmly entrenched as to require so much energy for its dislodgment.

EMILY DICKINSON

The major sensation in poetry, not only of the year but for some years past, was provided by the emergence from the guardianship of Mabel Loomis Todd and her daughter, Millicent Todd Bingham, of more than 650 hitherto unpublished poems by Emily Dickinson, gathered as *Bolts of Melody,* together with Mrs. Bingham's account in *Ancestors' Brocades* of the complicated and little-known conditions of "the literary debut of Emily Dickinson."

WAR-EXPERIENCE LITERATURE

The distinctive literature of war-experience belongs rather to history than to the department of literature, but in the cartoons of William Henry Mauldin, created, with his interpretative text, in *Up Front,* a link between *belles lettres* and the public whose reading is chiefly accomplished through the newspapers is admirably accomplished; nothing that the war has given us in reports from actual participation, save the heartfelt, homely letters home to the American heart written by Ernie Pyle, has made quite the impression on the country at large than the drawings, so bitter and so loving, of Mauldin's disillusioned dogface heroes Joe and Willie.

MENCKEN AND CARL VAN DOREN

A major event was the appearance of *Supplement One to the American Language,* Henry L. Mencken's rich, witty, widely welcome contribution to a subject to which he has devoted his talents and his time over a long period. A monumental work of scholarship was accomplished by Carl Van Doren in the editing of *Benjamin Franklin's Autobiographical Writings* beyond the familiar *Autobiography,* so as to tell the whole story of his versatile life.

HISTORICAL RESEARCH FIELD

In the field of historical research a distinguished contribution was also made to *belles lettres* by the presentation, in *My Heart and My Head* by Helen Dupuy Bullock, of the "little history of Thomas Jefferson and

Maria Cosway," based on hitherto unpublished letters of Jefferson to the beautiful, devout, and married musician, composer, and artist whose pictures and portraits adorn the volume. These 25 missing letters, breathing a devotion of the utmost propriety, were found in the estate of the attorney of Jefferson's grandson and executor, and here are woven into the narrative of that long friendship, one that was distant only in the geographical sense.

NATURAL HISTORY

As usual, natural history contributed to pure literature more than one example, the outstanding ones being *The Lost Woods,* adventures of Edwin Way Teale with many different creatures in many different places and with the changes nature makes in her own scenery—a text of which the photographs of Teale form an integral part—and a centennial tribute to Henry D. Thoreau by George F. Whicher, *Walden Revisited,* a full-length critical portrait in pages as few as Thoreau himself would have preferred for terseness, and the opening comment that though Walden Pond is preserved as a state reservation, it is no longer a refuge of the spirit.

ENGLISH LANGUAGE AND LITERATURE

By Donald Nelson Koster
Department of English, University of Pennsylvania

GENERAL

The year 1945 saw the cessation of hostilities in both Europe and the Far East, and thus many shortages that had existed for American civilians were either eased or eliminated. Paper and newsprint, however, continued to be in short supply, with the result that many manuscripts which otherwise would have been printed have remained on publishers' shelves or on authors' desks. Nevertheless, the year was, from the standpoint of published scholarly works in the field of English Language and Literature, more productive than the preceding year, and 1944 was not what might be termed a "slim" year.

The survey here presented is, like its predecessors, necessarily limited by the demands of space; therefore, many brief or extremely technical items are not mentioned. A complete list of such contributions will be found in due time in the Supplement to the *Publications of the Modern Language Association (PMLA).** The present article furthermore is mainly restricted to a consideration of work which has been published in the United States.

ENGLISH LANGUAGE

Linguistic Bibliography.—S. N. Trevino prepared a bibliography of phonetics (*AS*) and Joseph Jones did likewise for present-day English (*AS*). Elliott V. K. Dobbie continued his "General and Historical Studies" (*AS*), while Kemp Malone in "Some Linguistic Studies of 1941-1944" (*MLN*) commented critically upon important work in the field.

American English.—The year saw the publication of *The American Language: Supplement I,* by H. L. Mencken (Knopf). The first in a proposed series of supplements to the author's monumental work, *The American Language,* this volume is in itself a 739-page compendium of timely information on the state of the Union's language. Ramon F. Adams' *Western Words* (Oklahoma), a sequel to the same writer's *Cowboy Lingo,* may be best described as a dictionary of the range, cow camp, and trail. In "Du Pratz's *History of Louisiana* (1763), A Source of Americanisms, Especially of Those Attributed to Imlay" (*AS*), John T. Krumpelmann produces evidence that the third edition of Imlay's *Topographical Description* borrowed freely from the anonymous English translation of du Pratz's *Histoire,* which thus gives earlier occurrences of Imlay's words than those cited in the DAE. Steven T. Byington contributed the third in his series of "Mr. Byington's Brief Case" (*AS*), considering miscellaneous matters connected with American English, and A. R. Dunlap's "Observations on American Colloquial Idiom" (*AS*) discusses *any more, at all, off of,* and other idioms.

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* Periodicals are cited under the following abbreviations, the reference being always to the volume for the year covered by this review: PMLA, *Publications of the Modern Language Association of America;* JEGP, *Journal of English and Germanic Philology;* ELH, *English Literary History;* HLQ, *Huntington Library Quarterly;* MLQ, *Modern Language Quarterly;* MLN, *Modern Language Notes;* JHI, *Journal of the History of Ideas;* AS, *American Speech;* ASch, *The American Scholar;* KR, *The Kenyon Review,* CW, *The Catholic World;* CE, *College English;* SRL, *The Saturday Review of Literature.* Titles of books are followed by the name of the publisher or press printing the book.

Words and Terms.—Ivor Brown's *A Word in Your Ear and Just Another Word* (Dutton) is a delightful little volume, combining Brown's earlier anthology of words that interest him with his more recent one. The effect of maritime phrases on the landsman's language is traced by Joanna Carver Colcord in an interesting study entitled *Sea Language Comes Ashore* (Cornell Maritime Press). In "The Word Harvest of '44" (*SRL*) Walker Allen Read provides a colorful inventory of the words and expressions born in 1944, and I. Willis Russell browses "Among the New Words" (*AS*). Robert H. Welker in "G. I. Jargon: Its Perils and Pitfalls" (*SRL*) issues a warning to authors to examine carefully the language the soldiers thought and wrote in so that their novels, poems, and plays may be authentic, while Eric H. Partridge examines the slang of the R.A.F. in "Words Get Their Wings" (*CE*).

Basic English.—The year brought the publication of two new books on this subject: *Learning Basic English* (Norton) by I. A. Richards and Christine Gibson, and *Handbook of Basic English* (Appleton-Century) by Tom Burns Haber. The first is a practical handbook for English-speaking people and takes up the various important uses to which Basic English can be put; it is, on the whole, an excellent exposition of the subject. The second is a workmanlike attempt to present a complete condensed description of Basic. A third book which dealt in part with the topic was Winston S. Churchill's *The Dawn of Liberation* (Little, Brown), a collection of the former Prime Minister's speeches, messages, and broadcasts for 1944. Included is Churchill's statement to the House of Commons on March 9, 1944, concerning Basic English. In it Churchill indicates the steps taken by the British Government to develop Basic English as "an auxiliary international and administrative language."

Vocabulary.—J. H. Neumann contributes two items, "The Dutch Element in the Vocabulary of American English" (*JEGP*), and "American Newspaper Interest in English Language Problems" (*AS*), while James B. McMillan in "New American Lexical Evidence" (*AS*) lists 95 words and combinations "intended to supplement the evidence provided in the DAE."

OLD ENGLISH

Although numerous minor items were contributed, particularly to *MLN*, there was little work of substantial dimensions published in the Old English field in 1945. Noteworthy were two *PMLA* papers by Sherman M. Kuhn and W. H. French. In "*E* and *AE* in Farman's Mercian Glosses," Kuhn presented the evidence relating to Farman's uses of *e* and *ae* in accented syllables and a sampling of the uses in unaccented syllables; he then endeavored to explain each usage in the light of modern scholarship. French, in "*Widsith* and the Scop," advanced the theory that the *Widsith*-poet was a scop, whose "ultimate aim in composing the poem or in reciting it subsequently was to interest a patron in supporting him."

MIDDLE ENGLISH

The year 1945 saw the second printing of a work that had appeared first ten years earlier: the modern English rendition by Henry W. Wells of William Langland's *The Vision of Piers Plowman* (Sheed and Ward). Coolidge Otis Chapman concluded, in his "Virgil and the *Gawain*-Poet" (*PMLA*), that the author of *Sir Gawain and the Green Knight* was a reader of the *Aeneid.*

There were several Chaucer items. Margaret Galway in "Chaucer's Hopeless Love" (*MLN*) argued in support of the identification of the lady alluded to in the poem to the *Book of the Duchess* with Joan of Kent. B. J. Whiting in "'By My Fader Soule' (*CT,* II (B), 1178)" (*JEGP*) cited numerous parallels to the oath in the Man of Law's end-link to show: (1) that "while it was more common to swear by the soul of a dead parent, it was possible to swear by that of one still living," and (2) that in the two centuries after Chaucer "it was reserved for comic scenes and was used only by low, vulgar or rustic characters." In "Action at Actium—An Alliterative Crux in Chaucer (*He poureth pesen upon the haches slidere—LGW* 648)" (*JEGP*), Roland M. Smith suggested "either that (1) Chaucer misread *peires, peres,* or *pieres* (= "stones") in his MS. source as *peises,* or that (2) he found already in his source the form *peises* (= "weights"), which he understood as the analogical *S*—plural equivalent to the more usual *pesen,* and thereupon changed it to *pesen.*" Johnstone Parr presented evidence in "The Date and Revision of Chaucer's *Knight's Tale*" (*PMLA*) that there was much more revision of the tale than has been hitherto acknowledged and that the date of this revision was probably after the middle of 1390. In "Alice Chaucer and Her Husbands" (*PMLA*), Marjorie Anderson added weight to the theory that Alice Chaucer was the granddaughter of the celebrated Geoffrey.

FIFTEENTH CENTURY

Francis Lee Utley's "When Nettles in Winter Bring Forth Roses Red" (*PMLA*) traces the evolution of the fifteenth-century lying-song which advises us to trust women only when nettles bear roses and other wild impossibilities come to pass. Marshall W. Stearns continued his work on the Scottish Chaucerian, Robert Henryson, with the publication of *A Modernization of Robert Henryson's "Testament of Cresseid," with an Introduction and Notes* (Indiana) and "Henryson and Chaucer" (*MLQ*), a detailed study of the relationship of Henryson's *Testament of Cresseid* to *Troilus and Criseyde.*

EARLY TUDOR

Vernon Hall's *Renaissance Literary Criticism: A Study of Its Social Content* (Columbia) is an exposition of the belief that Renaissance literary theory and criticism were upper-class and dictated chiefly by socio-political motives. In "More Sources of Rastell's *Interlude of the Four Elements*" (*PMLA*), *Johnstone Parr* examines further source-material for Rastell's cosmology, natural history, and geography. Elizabeth T. Hastings provides a collation of the printed text of a 1549 sermon of Bishop Latimer with a newly discovered translation of it in "A Sixteenth Century Manuscript Translation of Latimer's *First Sermon Before Edward*" (*PMLA*).

AGE OF ELIZABETH

George Chapman's view of man as "split by the Platonic dichotomy between sense and intellect" is derived from Hellenistic philosophy rather than from Christian orthodoxy, according to Roy W. Battenhouse's "Chapman and the Nature of Man" (*ELH*). "Marlowe's 'Imperiall Heaven'" (*ELH*), by Francis R. Johnson, explores Renaissance ideas of cosmology underlying the dramatist's use of this phrase, while Allan Holaday's "Robert Browne and the Date of Heywood's *Lucrece*" (*JEGP*) sets forth the viewpoint that the play was written in 1594 and later revised. Eugene M. Waith's "A Tragicomedy of Humors: Fletcher's *The Loyal Subject"* (*MLQ*) treats of Fletcher's use and modification of the Jonsonian principle of "humors" in character delineation, and Johnstone Parr's "The Horoscope in Webster's *The Duchess of Malfi"* (*PLMA*) concludes that the playwright produced a purely hypothetical horoscope to suit the dramatic purposes of his play. A. Philip McMahon's "Francis Bacon's Essay *Of Beauty"* (*PMLA*) is an attempt to clarify the meaning of the essay through a close study of its sources.

A minute examination of the poetry of Ben Jonson was made by George B. Johnston in his *Ben Jonson: Poet* (Columbia Univ. Studies in English and Comparative Literature #162), and Herbert H. Umbach undertook a full analysis of the "metaphysical" devices used by John Donne in his sermons, concluding in "The Merit of Metaphysical Style in Donne's Easter Sermons" (*ELH*) that Donne, "considered in the context of his times," was not an extremist in this regard. In "The Murdered Substitute Tale" (*MLQ*), Ernest G. Mathews traced the seventeenth century history of the source of the substitute bride episode in *The Changeling*, while Herbert Weissinger in "The Seventeenth-Century Reputation of the Elizabethans" (*MLQ*) found "a continuous tradition of appreciation of the work of the Elizabethans."

SPENSER

The most considerable work of 1945 on Spenser was Alexander C. Judson's biography of the poet, *The Life of Edmund Spenser* (Johns Hopkins). There were several articles. Mark Eccles wrote "Elizabethan Edmund Spenser" (*MLQ*), in which he listed all known bearers of the name and concluded that the poet is in all probability the Edmund Spenser who married Machabyas Chylde on Oct. 27, 1579. That Spenser's treatment of savages illustrates his idea that the good life can be achieved only by man's realizing fully one's own nature as a rational animal is the thesis of Roy H. Pearce in "Primitivistic Ideas in the *Faerie Queene"* (*JEGP*). John E. Hankins in "Spenser and the Revelation of St. John" (*PMLA*) illustrates the biblical influences on Book I of Spenser's great work, and Kerby Neill in "Spenser's Acrasia and Mary, Queen of Scots" (*PMLA*) provides further evidence that the poet may have represented Mary Stuart allegorically in the character of Acrasia.

SHAKESPEARE

The year was productive of several books dealing with Shakespearian scholarship: *Shakespearian Comedy and Other Studies* (Oxford) by George Gordon, a collection of essays by the late Professor Gordon originally delivered as lectures at Oxford and Cambridge; *Shakespeare and the Popular Dramatic Tradition* (Duke) by S. L. Bethell; *Shakespeare and Johnson* (Chicago) by Gerald Eades Bentley; and *The True Text of "King Lear"* (Johns Hopkins) by Leo Kirschbaum. The latter author also wrote "The Origin of the Bad Quartos" (*PMLA*), in which he advanced the theory that the bad texts were produced by memorizing the good texts in theatrical manuscripts rather than by memorizing performance.

Robert Adger Law in *"Richard the Third:* A Study in Shakespeare's Composition" (*PMLA*) suggests the probability that the first act was conceived after most of the plot had been planned and shaped up, while Fred Manning Smith in "The Relation of *Macbeth* to *Richard the Third"* (*PMLA*) believes that Shakespeare used not only Holinshed but also his own earlier play in evolving his *Macbeth.* In "Shakespeare and Apleius" (*PMLA*) D. T. Starnes reveals the influence of Shakespeare's reading of *The Golden Ass* upon his work. Dorothy Bethurum, in "Shakespeare's Comment on Medieval Romance in *A Midsummer Night's Dream"* (*MLN*), contends that the play "was conceived in the spirit of parody on medieval romance" and that the influence of Chaucer's *The Knight's Tale* is greater than is usually supposed. Brents Stirling, in "Shakespeare's Mob Scenes: A Reinterpretation" (*HLQ*), studies these scenes against the background of anti-popular propaganda to be found in the popular literature, official documents, and published sermons of the times. Willa McClung Evans' "Shakespeare's 'Harke Harke Ye Larke'" (*PMLA*) introduces a variant of the song-text, while John W. Draper studies "The Tempo of Shylock's Speech" (*JEGP*). Articles growing out of recent Shakespearian productions are Paul Robeson's "Some Reflections on *Othello* and the Nature of Our Time" (*ASch*) and Oscar J. Campbell's analysis of "Miss Webster and *The Tempest*" (*ASch*).

Rupert Taylor's "Shakespeare's Cousin, Thomas Greene, and His Kin: Possible Light on the Shakespeare Family Background" (*PMLA*) suggests a kinship between the dramatist and Thomas Greene, solicitor, steward, and town clerk of Stratford-on-Avon from 1603 to 1617.

SEVENTEENTH CENTURY

An early text, recently discovered, of the Lovelace sonnet beginning "When I by thy faire shape did sweare" is analyzed by Willa McClung Evans in "An Early Lovelace Text" (*PMLA*), while Allen R. Benham in "Sir John Suckling, *A Sessions of the Poets: Some Notes and Queries*" (*MLQ*) speculates on possible candidates for the laureateship mentioned and not mentioned by Suckling. Michael F. Moloney's "Richard Crashaw" (*CW*) is an appreciation of Crashaw's poetry, and John L. Lievsay's "Tuvill's Advancement of Bacon's Learning" (*HLQ*) reveals the indebtedness of Tuvill's essays to Bacon. In "Winstanley's *Lives:* An Appraisal" (*MLQ*) William R. Parker shows that, although Winstanley made free use of Phillips's *Theatrum Poetarum,* his own contributions were by no means negligible.

In a critical essay entitled "Restoration Comedy (Reconsiderations II)" (*KR*) Julian Symons advanced opinions that Eric R. Bentley felt obliged to protest in "The Views of Mr. Symons" (*KR*), printed in the columns of the same journal. Lucyle Hook, in "James Bridges Drops in at the Theatre" (*HLQ*), probes the diary of the future Duke of Chandos for information, particularly concerning the Betterton Group's playhouse in Lincoln's Inn Fields for the years 1697-1701.

MILTON

Miltonic research produced several articles and two books, Douglas Rush's *Paradise Lost in Our Time* (Cornell) and Sr. M. Irma Corcoran's *Milton's Paradise with Reference to the Hexameral Background* (Catholic U.). Among the articles were "*Skriften om Paradis* and Milton" (*JEGP*) by W. G. Johnson, on Spegel's Swedish version of *Paradise Lost,* and Roland M. Smith's "Spenser and Milton: An Early Analogue" (*MLN*), which calls attention to parallels between the verse-letter from Spenser to Gabriel Harvey, published in 1580, and Milton's famous sonnet: "How soon hath time the subtle thief of Youth." John E. Hardy's "Reconsiderations: I—*Lycidas*" (*KR*) is a critical essay on the poem, and William Haller's "'For the Liberty of Unlicenc'd Printing'" (*ASch*) discusses the *Areopagitica.* John S. Diekhoff argues in "Eve, the Devil, and *Areopagitica*" (*MLQ*) that there is no inconsistency in Milton's thought in *Paradise Lost* (IX, 322-41) in which Eve paraphrases a passage from *Areopagitica.* Joshua H. Neumann's "Milton's Prose Vocabulary" (*PMLA*) reveals, in the matter of prose vocabulary, the number and variety of Milton's permanent contributions to the English language.

EIGHTEENTH CENTURY POETS AND DRAMATISTS

"Arabesque in Verse (Reconsiderations III)" (*KR*) by Wylie Sypher is a critical estimate of Alexander Pope. H. W. Starr considers "Gray's Revisions of his Friends' Poetry" (*JEGP*), and Wallace C. Brown in "Churchill's Mastery of the Heroic Couplet" (*JEGP*) contends that "at his best . . . Churchill is one of the masters of the heroic couplet and the last great neo-classic satirist." Roy H. Pearce's "The Eighteenth-Century Scottish Primitivists: Some Reconsiderations" (*ELH*) treats of the discussions of original genius, the noble savage, etc., and Robert A. Aubin's "John Auther, Philomusus" in the *Journal of the Rutgers University Library* renders a brief account of Auther's *Poems on Various Occasions* (1777).

Lawrence M. Price gives an account of "The Works of Oliver Goldsmith on the German Stage, 1776-1795" (*MLQ*), while Edward H. Weatherly in "Foote's Revenge on Churchill and Lloyd" (*HLQ*) interprets the revised version of Foote's play *Taste* (1761) as satire on Churchill and Lloyd in reply to their attacks on Foote in *The Rosciad* and *The Actor*. The argument that the concept of "sentimentalism" as defined by Bernbaum and other scholars is not applicable to Lillo's *The London Merchant* is proposed by George B. Rodman in "Sentimentalism in Lillo's *The London Merchant*" (*ELH*). Raymond D. Havens takes issue with Rodman in "The Sentimentalism of *The London Merchant*" (*ELH*).

EIGHTEENTH CENTURY PROSE WRITERS

Swift.—The year was productive of several noteworthy items concerning Jonathan Swift, the most ambitious being Arthur E. Case's *Four Essays on "Gulliver's Travels"* (Princeton). Articles dealing with Gulliver were "Lilliput and Leprecan: Gulliver and the Irish Tradition" (*ELH*) by Margaret R. Grennan, which suggests that the Irish imagination influenced Swift more strongly than has been thought, and "Gulliver and the Moons of Mars" (*JHI*) by J. H. Gould, which contends that Swift's account of the moons of Mars was neither "inspiration nor a happy guess, but rather it was his failure to comprehend certain implications in Newton's *Principia* that led him into unintentional absurdity." Godfrey Davies' "A New Edition of Swift's *The Story of the Injured Lady*" (*HLQ*) attributes to Charles Lucas the "Preface, by A. Freeman," added to a newly discovered edition of 1749. Arthur E. Case in "Swift and Sir William Temple—A Conjecture" (*MLN*) suggests 1687 as the year in which Swift consumed the "surfeit of fruit" which induced his life-long tendency to giddiness. A detailed study of Swift's attitudes toward the relief of the underprivileged may be found in "Jonathan Swift and Charity" (*JEGP*) by Louis A. Landa.

Defoe, Sterne, Smollett.—"Defoe and *Robert Drury's Journal*" (*JEGP*) by Arthur W. Secord finds evidence that the imaginary elements in the *Journal* are bound in a more substantial framework of fact than has formerly been supposed. A second Defoe item, "Defoe and His Northern Printers" (*PMLA*), by Charles Eaton Burch, shows that Defoe, to extend his journalistic activities in Scotland and northern England, found it expedient to work in close collaboration with his Northern printers. *A Fellow of Infinite Jest* (Prentice-Hall) by Thomas Yoseloff is a biography of Lawrence Sterne with an examination of his writings, and *The Profane Virtues* (Viking) by Peter Quennell contains an ably drawn portrait of Sterne as well as studies of Boswell, Gibbon, and John Wilkes. A real contribution to an understanding of Smollett's sources is George M. Kahrl's *Tobias Smollett, Traveler-Novelist* (Chicago), a book which shows the influence of Smollett's travels and his reading of travel literature upon his prose fiction.

Johnson, the Lambs, and Others.—"Dr. Johnson and War" (*ELH*) by H. R. Kilbourne deals with Johnson's interest in military and naval matters. Katherine Anthony's *The Lambs* (Knopf) is a biographical study of Charles and Mary Lamb, indeed, a portrait of their entire circle. Mary is stressed in this account, and the author analyzes the tragedy of Mary's insanity, which led to the killing of her mother and the subsequent close connection of brother and sister. "Horace Walpole Reread" is an evaluation of Walpole in the *Atlantic Monthly* by Wilmarth S. Lewis, foremost American collector of Walpole data. Alfred Owen Aldridge's "Shaftesbury and the Test of Truth" (*PMLA*) attests that Shaftesbury did not, in his *Characteristics,* represent ridicule as a means of discovering new truth. In "Mr. and Mrs. Garrick: Some Unpublished Correspondence" (*PMLA*), Harry W. Pedicord reveals the existence of six hitherto unpublished letters to or by the Garricks.

THE ROMANTIC POETS

General Works.—Before consideration of the individual poets is undertaken, two general works of significance should be mentioned: Charles F. Harrold's "The Romantic Movement: A Selective and Critical Bibliography for the Year 1944" (*ELH*) and William S. Ward's "Some Aspects of the Conservative Attitude Toward Poetry in English Criticism, 1798-1820" (*PMLA*), which analyzes the forces of reaction that the Romantic Poets had to cope with.

Wordsworth.—In *Strange Seas of Thought* (Duke), Newton P. Stallknecht endeavors to show that Wordsworth's "pantheistic theory of imagination" came from the seventeenth-century German mystic, Jakob Behmen (or Boehme). The *Letters of Dora Wordsworth* (Packard), edited by Howard P. Vincent, cast interesting sidelights on Wordsworth as seen through his daughter's eyes and revealed in her letters to Maria Jane Jewsbury. "Wordsworth and Railways in 1844-1845" (*MLQ*), by John E. Wells, deals with the letters and pamphlets written by the poet in opposition to the proposed railway along Lake Windermere.

Coleridge.—Considerable Coleridge scholarship found expression in 1945. Elizabeth Schneider's "The 'Dream' of *Kubla Khan*" (*PMLA*) dissented from any belief in the dream-composition "or any other extremely remarkable form of automatic composition of *Kubla Khan,*" and Charles S. Bouslog's "The Symbol of the Sod-Seat in Coleridge" (*PMLA*) endeavored to establish the fact that the poet used well defined personal symbolism. R. Florence Brinkley contributed some notes concerning Coleridge material at the Huntington Library in "Some Unpublished Coleridge Marginalia: Richter and Reimarus" (*JEGP*) and in "Coleridge on John Petoin and John Locke" (*HLQ*) printed Coleridge marginalia from a copy of Petoin's *Letters Concerning Mind.* In "The Gloss to *The Rime of the Ancient Mariner*" (*MLQ*), Huntington Brown expressed his belief that the gloss "serves to emphasize the remoteness of the story and its teller" and is in effect choric in its function. Earl L. Griggs in "Robert Southey's Estimate of Samuel Taylor Coleridge: A Study in Human Relations" (*HLQ*) contended that a study of Southey's letters reflects his changing attitudes toward Coleridge.

Byron.—Two books which afford studies in Byron's *Don Juan* are Paul Graham Trueblood's *The Flowering of Byron's Genius* (Stanford) and Elizabeth French Boyd's *Byron's "Don Juan"* (Rutgers).

Keats.—Stephen de Ullmann's "Romanticism and Synaesthesia" (*PMLA*) was a comparative study of sense transfer in Keats and Byron. Harold E. Briggs analyzed "Keats's Conscious and Unconscious Reactions to Criticism of *Endymion*" (*PMLA*) and concluded that Keats was greatly and adversely affected by the contemptuous reviews. In "Keats and Chaucer" (*MLQ*), F. E. L. Priestly revealed that Keats in 1818-19 was brought from a sentimental interest in Chaucer to a careful study of Chaucer's narrative by the demands of his own art and by the suggestions in Hazlitt's lectures. Allen Tate offered the first part of a critical evaluation of Keat's poetry in his "A Reading of Keats" (*ASch*).

Shelley.—Shelley was the most written about of the romantic poets in 1945. Newman Ivey White's *Portrait of Shelley* (Knopf) heads the list. The book is a shortened edition of Dr. White's two-volume *Shelley* published in 1940 but is by no means a mere condensation of the original study. The appendices and footnotes of the original have been omitted, and the result is an eminently readable volume. *The Letters of Mary W. Shelley* (Oklahoma), edited by Frederick L. Jones, contains in its two volumes almost 700 letters assembled from widely scattered sources. About half are printed for the first time, and the bulk of them are to Claire Clairmont, J. H. Payne, Sir Timothy Shelley's lawyers, and various publishers. In *A Stage Version of Shelley's "Cenci"* (Caxton Printers), Arthur C. Hicks and R. Milton Clarke provide an introductory essay and an acting version of the poet's blank-verse drama. "The Stage History of Shelley's *The Cenci*" (*PMLA*), by Kenneth N. Cameron and Horst Frenz, provides further evidence that the play is not closet drama but a great acting play. Two other articles by Cameron are "Shelley's Use of Source Material in *Charles I*" (*MLQ*), revealing that Shelley took materials from the histories by Clarendon, Bulstrode, Whitelocke, Hume, and Mrs. Catherine Macaulay, and "Shelley and the Reformers" (*ELH*), dealing with the extent and significance of Shelley's interest in the movement for Parliamentary reform. Richard H. Fogle's "Romantic Bards and Metaphysical Reviewers" (*ELH*) is a reply to the "new" critics—T. S. Eliot, John Crowe Ransom *et al.*—who have deprecated Shelley.

NINETEENTH CENTURY ESSAYISTS

"Thomas De Quincey, Symptomatologist" (*PMLA*), by Cecilia Hennel Hendricks, establishes De Quincey's ability as a clinical reporter of facts. R. H. Super discusses the date of Walter Savage Landor's separation from his wife in "When Landor Left Home" (*MLQ*). "Hazlitt and Malthus" (*MLN*), by William P. Albrecht, is on the *Reply to the Essay on Population.* There are two Carlyle items: "The Premature Death of Thomas Carlyle (1795-1945). An Obituary and a Footnote" (*ASch*) by Eric R. Bentley, an analysis of Carlyle's reputation today, and "Thomas Carlyle, Prophet of Fascism" by J. Selwyn Schapiro in the *Journal of Modern History,* in which the author claims that Carlyle's views "are revealed to be those of a fascist in their essential implications."

Hill Shine and Charles E. Whitmore write on John Stuart Mill, the former doing "J. S. Mill and an Open Letter on the Saint-Simonian Society in 1832" (*JHI*) and the latter "Mill and Mathematics: An Historical Note" (*JHI*). In "Borrow's Translation of the *Walpurgisnacht*" (*JEGP*), Lillian E. Reed prints the text from a manuscript now in the library of Yale University, and J. D. Kern, E. Schneider, and I. Griggs provide in "Lockhart to Croker on the *Quarterly*" (*PMLA*) a list of titles and authors of articles in the *Quarterly.*

NINETEENTH CENTURY FICTION AND POETRY

One of the year's most important books was *The Letters and Private Papers of William Makepeace Thackeray* (Harvard), edited by Gordon N. Ray. Although it has been 83 years since the death of the great novelist, this is the first comprehensive collection of his letters. Lucy Poate Stebbins and Richard Poate Stebbins wrote *The Trollopes* (Columbia), the story of the four principal members of the family: Frances and Thomas Anthony, the parents; Thomas Adolphus, the eldest son, and Anthony, the novelist, upon whom the book eventually centers.

Dickens items included "Dickens' *Christmas Carol* after a Hundred Years: A Study in Bibliographical Evidence" by Philo Calhoun and Howell J. Heaney in the *Papers of the Bibliographical Society of America,* a bibliographical study of the first edition, and "Contributions of Early American Journals to the Study of Charles Dickens" (*MLQ*) by Carolyn W. and Laurence H. Houtchens, in which new facts are gleaned from the New York *Mirror,* the *Knickerbocker,* the Bunker-Hill *Aurora,* and the *New World.*

Emerson Grant Sutcliffe's "Unique and Repeated Situations and Themes in Reade's Fiction" (*PMLA*) showed that Reade too often sought fame as a novelist through the multiplication of startling incidents, while Wayne Burns' "Pre-Raphaelitism in Charles Reade's Early Fiction" (*PMLA*) was an examination of what Reade had to say about art and artists in his novel *Christie Johnstone.*

In "The Note-Books of Samuel Butler" (*PMLA*), Lee Elbert Holt attempted to present a picture of the original note-books as they were before Henry Festing Jones edited them. *Victoria Through the Looking Glass* (Simon and Schuster), by Florence Becker Lennon, is a biography of Charles Dodgson (Lewis Carroll) in which the creator of Alice was interpreted in somewhat Freudian terms. Edgar W. Smith in *Baker Street Inventory* (The Pamphlet House) did a bibliography of Sherlock Holmes materials.

Three Browning items are worthy of mention. James A. McPeek's "The Shaping of *Saul*" (*JEGP*) was on Browning's indebtedness to Sir Thomas Wyatt's *Seven Penitential Psalms,* and Stewart W. Holmes's "Browning: Semantic Stutterer" (*PMLA*) contended that when the poet wrote as a prophet or metaphysician, he lost his ability to write meaningfully. C. N. Wenger, in "Clio's Rights in Poetry: Browning's *Cristina and Monaldeschi*" (*PMLA*), re-examined Browning's poem and raised several questions about it.

In *Francis Thompson: In His Paths* (Bruce), Terence L. Connolly, America's foremost authority on Thompson, wrote a combined travelogue, biography, and literary appreciation of the poet. Jerome H. Buckley's *William Ernest Henley: A Study in the "Counter-Decadence" of the 'Nineties* (Princeton) is a biography which made Henley out to be a rectifier of the decadent tendencies of his era—a balance against such as Oscar Wilde.

CONTEMPORARY LITERATURE

H. T. Webster, in "Joseph Conrad: A Reinterpretation of Five Novels" (*CE*), states that, judged on the basis of his best work, Conrad "has every claim to belong in the small company of really great writers of prose fiction." James T. Farrell contributed two articles on James Joyce to the *New York Times Book Review.* In the first, "Joyce and His First Self-Portrait," he discusses Joyce and *The Portrait of the Artist as a Young Man* in relation to its Irish setting and historical background. The second, "Joyce and the Tradition of the European Novel," is an examination of the relation of *The Portrait* to the tradition of the European novel. Vivienne Koch Macleod, in "The Influence of Ibsen on Joyce" (*PMLA*), discusses the considerable effect of the Norwegian dramatist on the Irish novelist, and Ernest Bernbaum in "The Crucial Question Regarding *"Finnegan's Wake"* (*CE*) answers negatively the question whether or not Joyce's vision of life is true and important.

Joan Bennett's *Virginia Woolf: Her Art as a Novelist* (Harcourt, Brace) is an analysis of Mrs. Woolf's novels, with much reference to the text of the books. Harry Slochower's *No Voice Is Wholly Lost* (Creative Age) offers interpretations of the thought of a host of writers, including D. H. Lawrence. James E. Tobin wrote "On Laughing in Graveyards: The Essays of D. B. Wyndham Lewis" (*CW*), and Eric R. Bentley did an analysis of "The Theory and Practice of Shavian Drama" for *Accent.*

John V. Kelleher examined "Irish Literature Today" in the columns of the *Atlantic Monthly,* and A. J. Reilly wrote on "The Religious Verse of Joseph Campbell" (*CW*). Robert Horan was the author of "In Defense of Dylan Thomas" (*KR*), and there were two Yeats items: W. Y. Tindall's "The Symbolism of W. B. Yeats" in *Accent* and James A. Notopoulos's *"Sailing to Byzantium"* in the *Classical Journal.* Robert W. Stallman's "Annotated Bibliography of A. E. Housman: A Critical Study" (*PMLA*) brought together for the first time all evaluations of Housman's poetry and poetic theory done between 1920 and 1945. Genevieve W. Foster studied "The Archetypal Imagery of T. S. Eliot" (*PMLA*), and Richard Chase, in "The Sense of the Present" (*KR*), wrote a critical essay largely on Eliot. "Obscurity in Modern Literature" (*ASch*) was a symposium contributed to by Marc Friedlander, William V. O'Connor, F. W. Dupee, and W. Y. Tindall, dealing with such figures as Gerald Manly Hopkins, James Joyce, T. S. Eliot, and others.

MISCELLANEOUS

Books and articles impossible to classify according to period include several important works. Charles Morgan's *Reflections in a Mirror* (Macmillan) is a book of mature critical essays, among which are excellent evaluations of Thomas Hardy and Emily Brontë. Sir Arthur Quiller-Couch's *Memories and Opinions by Q* (Macmillan) contains the early chapters of the autobiography the auther was writing when death intervened. It is a most attractive little volume, in which Q's opinions on books and authors are of interest. *A Foreword to Literature* (Appleton Century) by Ernest Earnest is an attempt to explain some of the fundamentals of literary criticism. A. L. Rowse's *The English Spirit* (Macmillan) contains essays on Thomas More, John Pym, Horace Walpole, Sir Walter Raleigh, George Herbert, Winston Churchill, and others whom Rowse feels reflect the spirit of England, at the core of which is "happiness." *The Dynamics of Literature* (Columbia) is by Nathan C. Starr and *The Basis of Criticism in the Arts* (Harvard) by Stephen C. Pepper. Marjorie Farber treats "Subjectivity in Modern Fiction" (*KR*), and Eric R. Bentley comments on "The Drama at Ebb" (*KR*). Thomas H. Uzzell's "Modern Innovations" (*CE*) deals with the technique of the novel.

GERMANIC LANGUAGES AND LITERATURES

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BIBLIOGRAPHY

The most comprehensive and reliable bibliography for the Germanic languages and literatures is that compiled annually by Henry W. Nordmeyer for the *PMLA*[*] Supplement. While this includes only writings of Americans, that by J. G. Kunstmann, "Recent Literature of the Renaissance: D. Germanic Languages," *SP*, records the productions of foreign scholars as well. The *GR* lists books received, while the *MfdU* annually lists alphabetically the members of the departments of German at our colleges and universities and their publications. The *AGR* contains interesting and illuminating travel diaries of early German settlers in America and also biographies of prominent Americans of German origin who have contributed abundantly to our American civilization. It also occasionally brings a bibliography of German-Americana. The *ASR* covers similar achievements of Americans of Scandinavian origin, with emphasis on Scandinavian-Americana.

ANNIVERSARY PUBLICATIONS

While 1945 does not stand out as an anniversary year in German literature, 1944 does and thus marks a revival of interest in several authors. The outstanding work here is E. H. Zeydel's excellent reproduction into English verse of *The Ship of Fools by Sebastian Brant*, thus marking the 450th year of its first appearance. Rev. Francis Roth has remembered the picturesque Augustinian preacher and writer "Pater Abraham a Sancta Clara 1644-1709" (*MfdU*, 36, 288-303). Highly to be commended is the summary by Martin Schütze of "Johann Gottfried Herder, August 25, 1744-

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[*] Abbreviations: *AGR — American-German Review, ASR—American Scandinavian Review, GQ—German Quarterly, GR—Germanic Review, JEGP—Journal of English and Germanic Philology, MfdU—Monatshefte für deutschen Unterricht, MLN—Modern Language Notes, MLQ—Modern Language Quarterly, PMLA—Publications of the Modern Language Association, SP—Studies in Philology.*

December 18, 1803: His Significance in the History of Thought" (*MfdU,* 36, 425-445). D. W. Schumann has supplied a good interpretation and evaluation of "Detlev von Liliencron, 1844-1909" (*MfdU,* 36, 385-408 and 37, 65-87). A sort of anniversary publication is that of W. A. Reichart, "Fifty Years of Hauptmann Study in America" (*MfdU,* 37, 1-31).

LITERARY CRITICISM

The most important articles in this field to be noted are the following: Karl Viëtor, "Deutsche Literatur als Geistesgeschichte, ein Rückblick" (*PMLA,* 60, 899-916); A. C. Gorr, "Theories of Some German Neoclassicists" (*GR,* 20, 138-146); H. Henel, "Friedrich Schlegel und die Grundlagen der modernen literarischen Kritik" (*GR,* 20, 81-93); Leo Spitzer, "Deutsche Literaturforschung in Amerika" (*MfdU,* 37, 475-480). D. W. Schumann has contributed two extensive and stimulating articles: "Observations on Enumerative Style in Modern German Poetry" (*PMLA,* 59, 1111-1155), and "Conjunctive and Disjunctive Enumeration in Recent German Poetry" (*PMLA,* 60, 517-566).

EARLY LITERATURE AND LANGUAGE

Under this category is found a wide range of articles from the earliest Old High German period to the beginnings of the seventeenth century: D. A. McKenzie, "Otfridiana" (*MLQ,* 6, 345-348); W. G. Moulton, "Scribe g of the Old High German Tatian Translation" (*PMLA,* 59, 307-334). Two scholars are interested in Hrotsvitha, the literary nun of Gandersheim: Z. Haraszti, *The Works of Hroswitha,* in *More Books,* and E. H. Zeydel who has published several articles which open up entirely new vistas: "Ekkehard's Influence upon Hrotsvitha, a Study in Literary Integrity" (*MLQ,* 6, 333-339); "Knowledge of Hrotsvitha's Works Prior to 1500" (*MLN,* 59, 382-385); "On the Two Minor Poems in the Hrotsvitha Codex" (*MLN,* 60, 373-376). Several articles deal with the language and literature of the fifteenth century: C. F. Bühler and Carl Selmer, "An Unpublished Middle High German *Banntaiding*" (*PMLA,* 60, 325-339); C. F. Bayerschmidt, "Johannes Veghe, a Low German Preacher of the Fifteenth Century" (*GR,* 20, 3-20); C. H. Bell and E. G. Gudde, *The Poems of Lupold Hornburg* (Univ. of Cal. Publ. in Modern Philology); W. I. Schreiber, "The *Depositio Cornuti* at Wittenberg University" (*GR,* 20, 21-32), an interesting and hitherto unmentioned description of student life and initiation at the beginning of the fifteenth century; Sister M. Alvarita Rajewski, *Sebastian Brant: Studies in Religious Aspects in His Life and Work with Special Reference to the "Varia Carmina"* (The Catholic Univ. of America Studies in German). Two noteworthy seventeenth century articles are: C. G. Loomis, "Martin Opitz in Seventeenth Century England" (*MLQ,* 6, 341-344); C. F. Melz, *An Evaluation of the Earliest Translation of "Don Quixote" "Juncker Harnisch aus Fleckenland"* (Univ. of Cal. Publ. in Modern Philology).

EIGHTEENTH CENTURY

The number of publications here is not numerous, but the few here noted are of high quality and are real contributions to our knowledge of the period: Henry C. Hatfield, *Winckelmann and His German Critics, 1755-1781: A Prelude to the Classical Age* (Columbia Univ. Germanic Studies); F. J. Schmitz, *The Problem of Individualism and the Crises in the Lives of Lessing and Hamann* (Univ. of Cal. Publ. in Modern Philology); C. C. D. Vail, "Pastor Lessing's Knowledge of English" (*GR,* 20, 33-46).

GOETHE AND SCHILLER

Karl Viëtor, in an article "Goethes Gedicht auf Schillers Schädel" (*PMLA,* 59, 142-183) started a controversy as to the application of the words: "Ist fortzusetzen," which are obviously misplaced in the last edition that Goethe saw through the press. Discussion and replies by F. H. Mautner, E. Feise, and Karl Viëtor are found in *PMLA,* 59, 1156-1172. A. R. Hohlfeld continues with a different interpretation: "Zur Frage einer Fortsetzung von Goethes *Wilhelm Meisters Wanderjahre*" (*PMLA,* 60, 399-420). Cf. Viëtor's reply, *Ibid.* 421-426. Other outstanding articles and monographs on Goethe are: A. R. Hohlfeld, "Reue in Goethes *Faust*" (*MfdU,* 37, 72-80); W. J. Mulloy, *The German Catholic Estimate of Goethe (1790-1939), a Contribution to the Study of the Relation of German Catholicism to Secular Culture* (Univ. of Cal. Publ. in Modern Philology); Carl Hammer, *Goethes Dichtung und Wahrheit; 7. Buch, Literaturgeschichte oder Bildungserlebnis? Versuch einer kritischen Wertung* (Univ. of Ill. Press); G. Ehrlich, "Goethe, Freiheit und Sturm und Drang," (*PMLA,* 59, 792-812); A. Scholz, "Ueber Goethes Gestalten" (*GQ,* 18, 76-85); W. A. Nitze, "Goethe and Ronsard" (*PMLA,* 59, 486-490); P. Matenko, "The Goethe, Schiller, and Byron Translations of the Saaling Album" (*MLQ,* 6, 53-69); Leo Spitzer, "Nochmals: zur Interpretation von *Wanderers Sturmlied*" (*GR,* 20, 161-165).

NINETEENTH CENTURY

Several noteworthy monographs and articles on authors of this period are: L. M. Price, *The Vogue of Marmontel on the German Stage* (Univ. of Cal. Publ. in Modern Philology); E. Brewer, *The New England Interest in Jean Paul Friedrich Richter* (*Ibid.*); Heinrich Heine, *Germany, A Winter's Tale,* English Version by Herman Salinger, Introduction by Herman Kesten (N. Y. 1944). New light on the Heine-Menzel feud is given by C. Colditz, "Ueber den Denunzianten" (*MLQ,* 6, 131-147). Mörike as a supreme artist is shown by F. H. Mautner, "Morikes *Mozart auf der Reise nach Prag*" (*PMLA,* 60, 199-220). A fine article in contrast is that by Ada M. Klett, "Doom and Fortitude—a Study of Poetic Metaphor in Annette von Droste-Hülshoff (1797-1848) and Emily Dickinson (1830-1886)" (*MfdU,* 37, 37-54). Introspective processes are investigated in the following: Walter Silz, "Otto Ludwig and the Process of Poetic Creation" (*PMLA,* 60, 860-878), and F. E. Coenen, "Theodor Storm's Personifications" (*SP,* 42, 654-662).

CONTEMPORARY LITERATURE

An excellent survey of the various currents of German literature through the past seven decades that will appeal to the average reader as well as the student of German literature is Victor Lange, *Modern German Literature, 1870-1940* (Cornell Univ. Press, Ithaca, 1945).

Of the contemporary writers, Thomas Mann has received the most attention. A recent bibliography of articles, translations, and essays by Americans or German emigrés living in America, as well as the writings and speeches of Thomas Mann published since his arrival in the United States, to the number of 473 items, has been accumulated by Walter A. Reichart (*MfdU,* 37, 389-408). The most comprehensive article is that of Bernhard Blume, "Thomas Manns Goethebild" (*PMLA,* 59, 261-290; 556-584; 851-868). The same subject is treated by Ernst Cassirer, the German philosopher who recently died in this country (*GR,* 20, 166-194). Some further essays are: G. Loose, *Thomas Mann and the Problem of Decadence* (Univ. of Col. Studies); A. von Gronicka, "Thomas Mann and Russia" (*GR,* 20, 105-137); W. F. Michael, "Thomas Mann's *Joseph der Ernährer*" (*MfdU,* 37, 32-36); Elizabeth E. Bohning, "The 'Hintergrundsgestalten' in *The Magic Mountain*" (*GQ,* 18, 189-202).

Rainer Maria Rilke is also a favorite theme for American scholars and translators. Two volumes of his poems in translation are those of Carl Niemeyer and Jessie Lemont, respectively. His letters have been translated by Jane B. Greene and M. D. Herter Norton (N. Y., 1945). Two illuminating articles are: H. W. Hewett-Thayer, "Rilke and the Boscoreale Frescoes" (*GR,* 20, 47-53); O. S. Fleissner, "Rilke and van Gogh" (*GR,* 20, 94-104).

Franz Werfel also occupies the center of interest. Here only a few articles can be mentioned: A. D. Klarmann, "Allegory in Werfel's *Das Opfer* and *Jakobowsky and the Colonel*" (*GR,* 20, 195-217); W. A. Willebrand, "Franz Werfel's *In einer Nacht, Eine blassblaue Frauenschrift* and *Jakobowsky*" (*MfdU,* 37, 146-158); Wilma Brun, *Franz Werfel* (Univ. of Col. Studies).

Numerous articles have appeared on Hugo von Hofmannsthal: W. Naumann, "Das Visuelle und das Plastische bei Hofmannsthal" (*MfdU,* 37, 159-169); Herbert Steiner, "Hugo von Hofmannsthals 'Notizen zu einem Grillparzervortrag'" (*MfdU,* 37, 170-175); E. Feise, "Philosophische Motive im Werk des jungen Hofmannsthal" (*MfdU,* 37, 31-39). Other contemporaries have been treated in the following essays: A. von Gronicka, *Henry von Heiseler, a Russo-German Writer* (Columbia Univ. Germanic Studies); K. S. Weimar, *The Concept of Love in the Works of Hermann Stehr* (Univ. of Penn. Diss. Philadelphia, 1945); F. W. J. Heuser, "Gerhart Hauptmann and Frank Wedekind" (*GR,* 20, 54-68); Erich Hofacker, "Zu Kolbenheyers *Paracelsus*" (*MfdU,* 37, 129-145).

GERMANS IN AMERICA

As noted above under "Bibliography" the *AGR* is particularly dedicated to this field. Outstanding articles appearing elsewhere are here listed: A. H. Moehlenbrock, "The German Drama on the New Orleans Stage" (*Louisiana Historical Quarterly* 26, 361-627); A. E. Zucker, "The History of the German Theater in Baltimore" (*GR,* 18, 123-135); H. W. Pfund, *A History of the German Society of Pennsylvania, Founded 1764* (Philadelphia, 1944); A. E. Zucker, "A Monument to Robert Reitzel" (*GR,* 20, 147-152); A. J. Prahl, "Bayard Taylor in Germany" (*GQ,* 18, 16-25); Carl Wittke, "Karl Heinzens Literary Ambitions" (*MfdU,* 37, 88-98); Dieter Cunz, "Carl Heinrich Schnauffers literarische Versuche" (*PMLA,* 59, 524-539). The twenty-sixth report of the Society for the History of the Germans in Maryland (Baltimore, 1945) contains a number of articles preliminary to the ambition of the Society to publish a definitive *History of the Germans in Maryland.*

SCANDINAVIAN LANGUAGES AND LITERATURES

The American-Scandinavian Foundation (New York) has sponsored several recent publications: *Icelandic Poems and Stories,* edited by Richard Bek; *Scandinavian Plays of the 20th Century,* First Series: *Swedish Plays,* Second Series: *Norwegian and Danish Plays,* edited by Alrik Gustavson and others; *The Vatndaler's Saga,* translated by Gwyn Jones; *The Skalds, a Selection of Their Poems,* by Lee M. Hollander; *Twelve Stories by Steen Steenson Blicher,* translated from the Danish by Hanna Astrup Larsen, with an introduction by Sigrid Undset. Halldór Hermannsson has edited *The Vinland Saga* and *The Saga of Thorgils and Haflid* (*Islandica* 30 and 31), as well as a *Second Supplement to the Catalogue of the Islandic Collection Bequeathed by Willard Fiske,* all three of these works from the Cornell University Press.

ROMANCE LANGUAGES AND LITERATURES

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GENERAL

In 1944 the main interest in the Romance language field was in the teaching of the spoken language for practical use in the war emergency. In 1945 that interest in the spoken language was still reflected in the professional periodicals, possibly owing in part to a publication lag, in part to a sober professional evaluation of the claims made for the Army Specialized Training Program, with consideration of the extent to which its best features might be incorporated in the rigidity of academic schedules. Changes already effected in modern language teaching as a result of the war experience were noted in the *Croft's Modern Language News* (December): an increased emphasis on the oral approach; a frequent increase in the number of class hours in the elementary courses to allow for increased oral work; a widespread use of extra class periods for laboratory work; and an increased use of the phonograph. Twenty-nine regional conferences were sponsored by the National Education Association to ascertain the place of languages in American education and to consider the need for improved instruction and materials.

New general trends of interest, however, were more noteworthy than any preoccupation with pedagogical techniques. It was obvious that the war's end loosed a flood of information about modern French literature—the publication of the war years of literary isolation. Incidentally, this increased emphasis on modern French seems to have been extended during the war to include the literature of French Canada. At the year's end Spanish appeared to be the literature most affected by a continuing isolation.

Again, as the war swirled away from Latin America, literary attention also seemed to turn aside. Quite possibly this will mean a higher caliber of scholarship found in articles that are no longer written by the "new Christians" of the war years. Certainly, if the 1945 section of articles on the Latin American theater furnishes any standard for judgment, the new articles may prove to be better, in general, than those of recent years.

The literature of Brazil—even more, that of Portugal—continued to be neglected in the scholarly research of the United States, despite all the emphasis of recent years on the value of Portuguese study in this country. Possibly it is as yet too early for the elementary work, now increasingly offered in our colleges and universities, to find its reflection in creative scholarship. Again, the general lack of such scholarship may be a sad commentary on the inadequacy of present university programs of Portuguese instruction. Such study of Portuguese as there was during the year turned almost exclusively to Brazil.

Among the year's many considerations of a necessary improvement in inter-American relationships, cultural and otherwise, are J. C. Patterson's "Inter American Cultural Relations and Language Teaching" (*Hisp.*,[1] 27-32), with its emphasis upon the value of language in any intelligent contact with foreign lands, and the general survey of "Cultural Relations," published by M. W. Nichols in the annual volume on *Inter-American Affairs*, edited by A. Whitaker (Columbia). H. G. Doyle's "A Realistic Approach to Practical Inter-Americanism" (*Hisp*, 208-209) was one of the best articles printed on this topic to date.

BIBLIOGRAPHIES

General.—The standard bibliographical work in the field is the "American Bibliography for 1944" appearing in the annual Supplement of the *PMLA*, with sections on French by H. C. Lancaster, and on Italian, Spanish, and Portuguese by E. B. Williams. General bibliographical studies which contained sections on the work in the Romance field were: "Recent Literature of the Renaissance" (*SP*, 271-377), in which S. F. Will covered French literature, J. G. Fucilla, the Italian, and L. L. Barrett and S. E. Leavitt, the sections on Spanish and Portuguese; J. J. Parry's "A Bibliography of Critical Arthurian Literature for the Year 1944" (*MLQ*, 219-223); and "English Literature, 1660-

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[1] Abbreviations used for periodicals are: *BA*, *Books Abroad; FR*, *French Review; Hisp*, *Hispania; HR*, *Hispanic Review; Ital*, *Italica; L*, *Language; MLJ*, *Modern Language Journal; MLN*, *Modern Language Notes; MLQ*, *Modern Language Quarterly*, *MP*, *Modern Philology; PMLA*, *Publications of the Modern Language Association; PQ*, *Philological Quarterly; RFH*, *Revista de Filología Hispánica; RHM*, *Revista Hispánica Moderna; RI*, *Revista iberoamericana; RR*, *Romanic Review; S*, *Speculum; SP*, *Studies in Philology*. University presses are indicated by the name of the institution alone.

1800: A Current Bibliography" by A. Friedman and L. A. Landa (*PQ,* 123-168), with a section on "Continental Background." W. Rice published an "Annotated Bibliography of Modern Language Methodology: July 1943-December 1944" (*MLJ,* 431-458).

French.—A bibliography of note in the field of comparative literature was "Anglo-French and Franco-American Studies: A Current Bibliography" by D. F. Bond and J. M. Carrière (*RR,* 161-190), with an annotated survey of 1944 materials covering "culture and literary history from the sixteenth century to the present day." R. P. Rosenberg, *et al.,* published a similar bibliography of "Franco-German Studies" (*RR,* 191-199).

Bibliographies of new French literature were: H. Bokanowsky's "French Literature in Algiers" (*BA,* 125-130), with a note on books and reviews published since 1939; L. and A. Gaudin's "Aspects. 1944" (*FR,* 249-265), listing the principal works on France and the war; an interesting bibliographical article by P. Rhodes on "How the French Writers Kept Going" (*Va. Quarterly Rev.,* 535-552); and the timely and useful "Post-liberation Publishing in France" by H. C. Rice (*FR,* 327-333).

The French Book Review Committee, under D. M. Dougherty, printed a "French book list" of "titles published for the most part in New York and Montreal" (*MLJ,* 524-528), while G. and H. Kurz printed a useful "Bibliography of French Textbooks Published in the United States from 1940-1945" (*FR,* 368-389). A more specialized bibliographical study of the Utopias of the late seventeenth and early eighteenth centuries was M. E. Storer's "Bibliographical Observations on Foigny, Lahontan and Tyssot de Patot" (*MLN,* 143-156).

Italian.—The excellent annotated "Bibliography of Italian Studies in America" by C. S. Singleton and V. Luciani appeared in the numbers of *Italia.* A. Borselli described a collection of materials in the University of Illinois in "I manoscritti della Collezione Cavagna relativi alla famiglia Lampugnani di Parma" (*Ital,* 109-117), while in "Italian Culture in Eighteenth-century American Magazines" (*Ital,* 21-31), H. R. Marraro surveyed some 90 American papers and reviews to determine to what extent Italian culture was known in America.

Latin American.—Regular annual bibliographical studies of Latin American language and literatures appear in the *RHM,* with parallel sections on Spain and Portugal in the *RFH.* The 1945 *Handbook of Latin American Studies* (Harvard) contained excellent bibliographies of the literary work of 1942 by S. E. Leavitt, I. A. Leonard, F. Aguilera, and S. Putnam. Extensive bibliographies also appeared in the *Handbook on the Teaching of Spanish and Portuguese* (Heath). Perhaps the outstanding bibliographical work of the year, however, was the annotated bibliography of *Latin American Periodicals Currently Received in the Library of Congress and in the Library of the Department of Agriculture* (Government Printing Office), edited by C. Shelby. The third edition of the *Who's Who in Latin America* began with a volume on Central America (Stanford).

Among the more specialized bibliographies, L. L. Barrett published "Theses Dealing with Hispano-American Language and Literature—1944" (*Hisp,* 210-211); in "Círculos literarios de Iberoamérica" (*RI,* 297-323), José Sánchez gave a valuable account of the work of the many literary societies in Spanish America and Brazil, with a note on leading personalities and the reviews published; S. E. Leavitt surveyed "Latin American Literature in the United States: Retrospect and Prospect" (*SP,* 716-722); W. K. Jones published "Latin America Through Drama in English: A Bibliography" (*Hisp,* 220-227); the second and third parts of J. E. Englekirk's valuable "Obras norteamericanas en traducción española" (*RI,* 125-166) covered work in the social and natural sciences, completing the author's earlier bibliography of literary works. A final bibliographical study of a Mexican short story writer was R. Rosaldo's

"Notas bibliográficas sobre la obra poética de D. José María Roa Bárcena" (*RI*, 381-389).

LANGUAGE

General.—In "Reflections on the Origin of the Romance Languages" (*RR*, 235-239), M. A. Pei concluded that "the big linguistic changes that mark the Romance world are apparently of a . . . date that seems to come close to their actual appearance in recorded form." E. D. Seeber gave an interesting historical account of the interest in artificial language as manifested in the works of authors of imaginary voyages and Utopias, in his "Ideal Languages in the French and English Imaginary Voyage" (*PMLA*, 586-597). W. Rice sought a basis for the use of the subjunctive in his "The Psychology of the Subjunctive in French and Spanish" (*MLJ*, 26-36). W. M. Day narrated "The History of *Studies in Philology*" (*SP*, 381-384).

French.—Among the year's studies in grammar were: H. C. Lancaster's "*Avant de* plus the Infinitive" (*MLN*, 401-404); J. C. Palamountain's "Notes on the Interrogative" (*MLJ*, 117-126) with its survey of a number of modern plays and novels to determine the order of words in questions in contemporary French; C. S. Parker's "Notes on French Usage (IV). Partitive Construction with Adjective before Noun" (*MLJ*, 529-532); and the "Notes sur la traduction du pronom personnel anglais sujet de la troisième personne" by R. Hardé and M. K. Hooke (*FR*, 11-23).

L. C. Yedlicka studied *Expressions of the Linguistic Area of Repentance and Remorse in Old French* (Catholic University). R. H. Hall described the grammatical inflection of substantives in "Colloquial French Substantive Inflection" (*FR*, 42-51); P. Delattre studied "Prononciation graphique et prononciation phonétique" (*FR*, 219-226, 285-296); while H. Phillips considered "Vowels of Louisiana 'Cajun' French" (*FR*, 159-162).

"French the Chief Source of English Military Words" was a study by A. M. Thompson (*FR*, 146-152). Among studies of individual words were F. M. Chambers' "Old Provençal *bederesc*" (*MLN*, 475-477); three studies by C. H. Livingston—"Old French *esverré*" (*MLN*, 319-321), "Old French *Herluïn*" (*MLN*, 178-180), and "Old French *raqueer, recoier, recoi*" (*MLN*, 522-525); and H. F. Williams' "Multiple *armes*" (*PMLA*, 598-602), with its consideration of the word *paire* as found in the expression *paire d'armes*. L. Spitzer published the following studies: "Anglo-French Etymologies" (*PQ*, 20-32 and *MLN*, 503-521); "French *mièvre*" (*MLN*, 52-54); "Un *hapax* ne peut être expliqué par la linguistique seule: *espaciun* dans *Gormont et Isembart*" (*MP*, 133-136), and "Nom de Dieu!" (*MLQ*, 243-261).

Italian.—M. A. Pei analyzed "Etruscan and Indo-European Case Endings" (*Ital*, 73-77). A. Hoare edited a *Short Italian Dictionary* (Macmillan). G. Bonfante published "Neo-grammarians and Neo-linguists: Italian *guglia*" (*RR*, 240-243) and, with A. Foulet, "Il nome di *Pantelería*" (*Ital*, 118-123). R. Levy added "Encore un mot sur l'italien *carapignarsi*" (*SP*, 764-768).

Portuguese.—A useful *Graded Word Book of Brazilian Portuguese* was published by C. B. Brown, *et al.* (Crofts), while M. Merryman published in Brazil his *Portuguese, A Portrait of the Language of Brazil*, which has been described as "a treatise on linguistics that you can actually use for bedtime reading—with more than one chuckle as you read." L. L. Barrett studied the "Position of the Brazilian Pronoun Object of the Infinitive" (*HR*, 340-346), and R. A. Hall, Jr. considered "Brazilian Portuguese Inflection" (*HR*, 231-242). L. Spitzer commented upon "Portuguese *iguaria*" (*L*, 98-99).

Spanish.—C. E. Kany's *American Spanish Syntax* (Chicago) was a valuable work of the year. Among other studies of grammar were: D. L. Bolinger's "Neuter *todo*, substantive" (*Hisp*, 78-80); R. K. Spaulding's "Is Accusative 'le' only Castilian or Northern too?" (*HR*, 336-340); and F. S. Spurr's "Further Reflections on *ser* and *estar*" (*Hisp,* 379-382). In a scholarly article M. Romera-Navarro studied "Ortografía Graciana" (*HR,* 125-144).

Among the word studies were C. E. Kany's "American Spanish *recién*" (*HR,* 169-173) and his "American Spanish *no más*" (*HR,* 72-79); L. B. Kiddle's *Spanish word 'jícara'* (*Tulane*); and three studies by Y. Malkiel —"The Etymology of Old Spanish 'apesgar' 'to Catch, to Press, to Weigh'" (*MLQ,* 149-160); "Old Spanish *nadi(e), otri(e)*" (*HR,* 204-230); and *The Derivation of Hispanic 'fealdad(e),' 'fieldad(e),' and 'frialdad(e)': Development of the Latin Suffixes '-antia' and '-entia' in the Romance Languages with Special Regard to Ibero-Romance* (California). L. Spitzer published "Enaziado, anaciado" (*RFH,* 160-162) and "*Lerdo* 'pesado, torpe en el andar' (Bestias), 'tardo y torpe para comprender'" (*RFH,* 43-44). Two more general studies were "I Heard It in Mexico" (*Hisp,* 228-230) by J. Adams, and T. L. Tatum's *Pan American Business Spanish* (Appleton-Century).

FRENCH LITERATURE

General.—A. G. Engstrom published a brief historical account of "The Formal Short Story in France and Its Development before 1850" (*SP,* 627-639). Two studies indicative of rising interest in French Canada and its literature were: M. Leland's "French Canada: An Example of what America Is Learning" (*MLJ,* 389-402) and the excellent *Two Solitudes* (Duell, Sloan, and Pearce) by H. MacLennan.

Three Roland studies were: "Ganelon and Roland" (*MLQ,* 263-269) by R. A. Hall, Jr.; "An Immortal Character in French literature" (*FR,* 189-195) by M. Pei; and R. N. Walpole's "The Source MS of *Charlemagne and Roland* and the Auchinleck Bookshop" (*MLN,* 22-26). F. M. Chambers wrote about the "Completion of a Text of Raïmbaut D'Aurenga" (*MLN,* 404-406), while A. Foulet sought "The Archtype of Joinville's *Vie de Saint Louis*" (*MLQ,* 77-81).

Sixteenth Century.—I. Silver published "a cursory review" of "Du Bellay and Hellenic Poetry" (*PMLA,* 66-80, 356-363, 670-681), with a study of the poet's Hellenizing program and his translations from Homer; his allusions to, and imitations of, the nonlyric poets of Greece; and his knowledge of the theory and methodology of the Greek ode. In "Du Bellay's *Olive* CXII and the *Rime diverse*" (*MLN,* 527-530), R. V. Merrill noted the poet's Italian sources and "imitations." R. J. Clements noted 12 hitherto undetected plagiarisms from Petrarch in "Desportes and Petrarch" (*RR,* 103-112). "Un symbole de l'église catholique: *Luna*" (*PMLA,* 59-65), by M. Françon, presented an explanation of certain texts of the sixteenth century, in view of the use of the moon as a symbol of the Church. J. C. Lapp published an interesting article on "An Explorer-Poet: Jean Parmentier" (*MLQ,* 83-92), who was "the first to express, in French poetry, the curiosity and enterprise, the interest in new lands, the zeal for discovery, of Renaissance man."

Seventeenth and Eighteenth Centuries.—Two studies by H. C. Lancaster were: "The Château de Richelieu and Desmaretz's *Visionnaires*" (*MLN,* 167-172), in which he concluded that the French author described his patron's real château in the play, and the valuable *Sunset, a History of Parisian Drama in the Last Years of Louis XIV, 1701-1715* (Johns Hopkins). The *Oeuvres de Charles-Michel Campion, Poète Marseillais du Dix-huitième Siècle* were published by E. D. Seeber and H. Remak (Indiana). J. Carnus considered "La conception de la nature humaine au dix-huitième siècle chez les écrivains français" (*FR,* 24-31), and E. D. Seeber published "Diderot and Chief Logan's Speech (*Frontières de Virginie*)" (*MLN,* 176-178).

Nineteenth Century.—R. Guthrie and G. E. Diller edited *French Literature and Thought Since the Revolution* (Harcourt, Brace). In an article on "Tocqueville's Later Years—A Reaffirmation of Faith" (*RR,* 113-121), S. J. Copans studied Tocqueville's faith in liberty. "Quelques lettres inédites de la période romantique" (*RR*, 32-37), published by André Delattre, were letters, mostly addressed to Sainte-Beuve, from George Sand, Royer-Collard, Molé, Mme. Desbordes-Valmore, Michelet, Lamennais, and Stendhal. E. Czoniczer noted Stendhal's plagiarisms in "Stendhal, Joinville et un conte arabe" (*MLN*, 525-527), while J. Seznec studied "Flaubert historien des hérésies, dans la *Tentation*" (*RR*, 200-221). Two studies of Daudet were: B. G. Carter's "Alphonse Daudet and Darwinism" (*MLQ*, 93-98) with a note of Darwin's influence on the French author's work; and A. R. Favreau's "Alphonse Daudet and Anselme Mathieu: Some Unedited Letters" (*RR*, 38-42), which showed evidence of Daudet's fine friendship for the Provençal poet.

G. M. Fess published "Maupassant Borrows from Himself" (*MLN*, 530-533), and A. Herman studied "Maupassant as a Source of Estaunié's Conception of Solitude". (*FR*, 141-145). In "Direct Echoes of French Poetry in Stefan George's Works" (*MLN*, 461-468), W. Vordtriede noted the influence of Baudelaire and Mallarmé, while M. Françon described the influence of Poe on Baudelaire in "Poe et Baudelaire" (*PMLA*, 841-859). B. J. Whiting's interesting article on "The English proverbs of Stéphane Mallarmé" (*RR*, 134-141) showed the poet's use of proverbs in the exercises illustrative of rules of grammar which he used in the drab business of teaching the English language.

R. P. Grant compared "The Poetry of François Coppée and Gutiérrez Nájera" (*HR*, 67-71), and S. A. Rhodes published a "Note on Gérard de Nerval's *Octavie*" (*MLN*, 172-176). Three articles by F. Baldensperger were: "L'opposition française à l'esthétique de Taine" (*RR*, 122-133); "Une nouvelle française peu connue sur le machinisme menaçant" (*MLN*, 321-323), with a note of *Mes Petites-Maisons* by Charles Barbara; and "Notes sur deux noms propres de la *Comédie Humaine*" (*MLN*, 50-52). Still another article on Balzac was J. M. Carrière's "Unnoticed Translations of Balzac in American Periodicals" (*MLN*, 234-241), which called attention to translations printed in the *New York Mirror* and the *Democratic Review*. R. G. Mahieu published *Sainte-Beuve aux Etats-Unis* (Princeton), and in "Sainte-Beuve and America" (*PMLA*, 427-436), L. MacClintock found that Sainte-Beuve's interest in America was relatively slight.

Twentieth Century.—J. Axelrad published *Anatole France. A Life Without Illusions* (Harpers). In "Le Bergsonisme de Paul Claudel" (*PMLA*, 437-462), F. Vial presented a detailed analysis of the reflection of Bergson's philosophical ideas in the work of Claudel. J. Romains wrote a "Hommage à Romain Rolland" (*FR*, 317-318), while F. Lehner wrote on "André Chamson" (*FR*, 153-158) and on "André Spire" (*BA*, 13-17). "A Recent French Adaptation of *La estrella de Sevilla*" (*RR*, 222-234), by H. L. Johnson, called attention to A. Ollivier's *L'étoile de Seville*. Two studies of Marcel Proust were the very interesting character study, "Marcel Proust ou l'angoisse créatrice" (*MP*, 212-230), by R. Vigneron, and *Proust and Painting*, by M. E. Chernowitz (International University, N. Y.).

Among the more general articles on the modern period were A. Balakian's "The Metaphysical Gamut of Surrealism" (*FR*, 202-208); E. E. Pell's "Gide and the Present Crisis" (*FR*, 213-218) as reflected in *Les Interviews Imaginaires;* and "La Sorbonne pendant l'occupation allemande" (*FR*, 7-10) by D. Mornet.

ITALIAN LITERATURE

Renaissance.—Among the Dante studies of the year were: H. D. Austin's "Dante's Metals" (*PQ*, 83-85) and "Dante's Precious Stones and Those of the Heavenly City" (*Ital*, 62-68); G. Bonfante's study of allegorical interpretation of Dante in "Ancora le tre fiere" (*Ital*, 69-72); W. P. Friederich's account of "Switzerland's Contribution to the International Appreciation of Dante Alighieri" (*SP*, 452-464); A. H. Gilbert's "Can Dante's Inferno be Exactly Charted?" (*PMLA*, 287-306); "A Classical Reference in the *Divina Commedia*" (*Ital,* 59-61) by E. W. Palm; the explanation of Love's words to the poet in a vision, given by C. S. Singleton in "Vita Nuova XII: Love's Obscure Words" (*RR,* 89-102); and, finally, the eloquent appreciation of the poet and his work in "The Living Dante" (*Ital,* 49-58), by E. H. Wilkins.

A. Lipari replied to C. S. Singleton's refutation of his thesis in "The Structure and Real Significance of the *Decameron*" (*Ital,* XXI, 117-124) in a new article "On *meaning* in the *Decameron*" (Ital, 101-108). The absentmindedness of Ariosto and resultant contradictions found in his work were noted in G. Natali's "Le distrazioni di Ludovico Ariosto" (*Ital,* 97-100). G. Giovanni studied "Agnolo Segni and a Renaissance Definition of Poetry" (*MLQ,* 167-173).

Other Studies.—F. P. Magoun, Jr. published the text of a curious pamphlet on football, "The Long-lost *Instruzione del modo del giuocare il calcio a i giovani nobili fiorentini* of 1739" (*Ital,* 14-20), and the equally strange codification of "all human actions" in the novel *Tizio o sia le vicende dell'umanitá* by Filippo de Jorio was described in "A Juridical Didactic Novel" (*PMLA,* 157-160) by F. Reichmann. In "Michele Leoni's *Venezia Salvata,* the first Italian translation of Otway's tragedy" (*Ital,* 1-13), J. Fellheimer compared the Italian translation with the original *Venice Preserved* and with the French adaptation of the play by P. A. de La Place. Two studies of Leopardi were L. A. Cotten's "Leopardi and *The City of Dreadful Night*" (*SP,* 675-689), and B. M. Woodbridge's "Leopardi and Impressionism" (*Ital,* 32-33). Y. E. Di Silvestro published *La Vita e i Romanzi di Grazia Deledda* (Pennsylvania). Finally, a study of *Pioneer Italian Teachers of Italian in the United States* was privately published by the author, H. R. Marraro.

PORTUGUESE (BRAZILIAN) LITERATURE

Manoel da S. S. Cardozo enthusiastically recommended the new periodical, *Atlântico,* in "The New Luso-Brazilian Review" (*BA,* 20-22). "There is no better means of getting a picture of the intellectual life of Brazil and Portugal." In "Pan Iberia or Pan-Lusitania?" (*BA,* 8-12), J. O. de Oliveira considered Portugal's spiritual separation from Spain and her need to improve the "intellectual and affective relationships" with Brazil. The only article to deal specifically with the literature of Portugal was A. H. Krappe's study of the influence of Schiller on the Portuguese poet Guerra Junqueiro in "O sôpro de Deus" (*MLN,* 472-475).

E. Veríssimo's brief history of *Brazilian Literature* was published by Macmillan, while two translations of Brazilian literature were S. Putnam's translation of J. Amado's *The Violent Land* (Knopf) and H. Chamberlain's translation of *Inocência,* by A. d'Escragnolle Taunay (Macmillan). A scholarly study of the work of the man who "taught the first course in Portuguese at an American (*i.e.,* U. S.) university and wrote the first Portuguese grammar published in the United States" is to be found in R. C. Smith's "A Pioneer Teacher: Father Peter Babad and His Portuguese Grammar" (*Hisp,* 330-363).

Among the studies of individual authors was D. F. Brown's "Azevedo's naturalistic version of Gautier's *La morte amoureuse*" (*HR,* 252-257), with its analysis of the way Aluízio Azevedo, in his *A Mortalha de Alzira,* transformed the plot of the Gautier story into a naturalistic novel. P. Serpa published a study of the "initiator of the naturalist novel in Brazil" in his "Manuel Antônio de Almeida" (*RI,* 325-356). In "*Os romances da Bahia,* de Jorge Amado" (*RI,* 79-83), E. E. Stowell gave an analysis of the six novels of a series reflecting life in Bahia.

SPANISH LITERATURE

Early Period.—O. K. Hauptmann noted a relationship between "The *General Estoria* of Alfonso el Sabio and Escorial Biblical Manuscript I.j.8" (*HR,* 45-59). S. G. Morley's "Chronological List of Early Spanish Ballads" (*HR,* 273-287) arranged all the earliest Spanish *romances* known, up to the year 1511, "according to the dates at which they are actually extant." In a study of "Aljamiado texts: Legal and Religious" (*HR*, 102-124), J. N. Lincoln gave an account of these MSS written in the Spanish language but in Arabic characters, and included Spanish transcriptions, with commentaries, notes, and glossary; the texts considered were four marriage contracts and three religious legends. D. C. Clarke's "Notes on Villasandino's Versification" (*HR*, 185-196) described the poet's verse as of note because it marked "the transition of Castilian versification from the Galician-Portuguese." S. Gilman published "El tiempo y el género literario en la *Celestina*" (*RFH*, 147-159).

Golden Age.—In "Deceit in Cervantes' *Novelas ejemplares*" (*HR*, 244-252), R. Frank studied the relation of deceit, as a literary device, to the form of the novels and its possible use as a clue to Cervantes' system of values at the time the stories were written. F. Aguilera described "The Kebler Addition to the Don Quixote Collection" (*Hisp*, 390-395) in the Library of Congress. Four articles on Lope de Vega were: H. L. Johnson's "A Recent French Adaptation of *La estrella de Sevilla*" (*RR*, 222-234); W. L. Fichter's "The Date of Lope de Vega's *Santiago el Verde*" (*HR*, 243-244); S. G. Morley's interpretation of the meaning of the play "El acero de Madrid" (*HR*, 166-169); and J. G. Fucilla's "A Classical Theme in Lope de Vega and G. B. Marino" (*MLN*, 287-290), with its note of the "Cupid and Bee" theme which Marino borrowed from Lope. In "Some Baroque Aspects of Tirso de Molina" (*RR*, 43-69), M. A. Peyton found Tirso to be "Baroque" because "the dramatic problem of his plays consists of principal conflicting attitudes." R. L. Kennedy studied "Contemporary Satire Against Ruiz de Alarcón as Lover" (*HR*, 145-165). In "'El Bernardo' of Balbuena: A Baroque Fantasy" (*HR*, 1-23), F. Pierce concluded: "The recent welcome change of attitude toward the literary style of the Spanish Baroque now makes it possible to mitigate much that has been said to the detriment of Balbuena and his fellow poets of the Golden Age." C. B. Beall described Mesa as "among the first Spanish poets to make translations . . . from Tasso's *Rime*" in his "Cristóbal de Mesa and Tasso's *Rime*" (*MLN*, 469-472). In a study of "Some Poetic Favorites of Salas Barbadillo" (*HR*, 24-44), G. G. LaGrone discussed the author's effective use of poetic quotation.

Modern Period.—N. B. Adams published "Notes on Dramatic Criticism in Madrid: 1828-1833" (*SP*, 609-616), calling attention to an increasing conflict between neo-classicism and romanticism as seen through criticism of numerous foreign works appearing in translation and, especially, in plays. In a study of "Emilia Pardo Bazán as a dramatist" (*MLQ*, 161-166), J. H. Nunemaker concluded that her plays well deserved the oblivion to which they have been consigned.

In "El carácter tradicional de *El Afrancesado* de Alarcón" (*RFH*, 162-163), W. L. Fichter noted as the source of the story an episode in the *Guerras civiles* by the Roman historian, Apiano. H. Sáenz studied the "Ideario Galdosiano" (*Hisp*, 364-369), and R. F. Brown's "The Romantic Novel in Catalonia" (*HR*, 294-323) begged a "sympathetic consideration" of three novels—*Los Terremotos de Orihuela*, by Estanislao de Cosca Vayo and Juan Cortada's *Lorenzo* and *El Templario y la Villana*. J. Jiménez Rueda studied the work of "Enrique Díez-Canedo" (*RI*, 391-392) and called attention to his friendship for Hispanic America.

In poetry, J. K. Leslie's "Towards the Vindication of Zorrilla: The Dumas—Zorrilla Question Again" (*HR*, 288-293) presented evidence in an attempt to indicate "that Zorrilla should be credited with the one great romantic, religious innovation of the nineteenth century in the Don Juan theme." Two studies of modern Spanish poets were C. Clavería's "Notas sobre la poética de Antonio Machado" (*Hisp*, 166-183), and H. Brickell's "A Spanish Poet in New York" (*Va. Quart. Rev.*, No. 3), with its personal memories of Federico García Lorca. A notable work in translation was E. L. Turnbull's *Contemporary Spanish Poetry: Selections from Ten Poets* (Johns Hopkins).

SPANISH AMERICAN LITERATURE

The outstanding book of the year and one of the most valuable in the Romance field was P. Henríquez Ureña's *Literary Currents in Hispanic America* (Harvard). W. Berrien's "A Significant Anniversary" (*Hisp,* 5-8) called attention to Joaquín García Monge's 25-year editorship of the *Repertorio Americano.* Letters evaluating the work of the famous Mexican were published in a symposium, "Our Alfonso Reyes" (*BA,* 111-14). R. W. Stallman published a fascinating account of "Robert Cunninghame Graham's South American Sketches" (*Hisp,* 69-75), while R. J. Niess noted "Federico Gamboa: The Novelist as Autobiographer" (*HR,* 346-351) with especial reference to the novel, *Reconquista.* A study of the literary work of Ricardo Palma and Abraham Valdelomar was published by E. Núñez in "A los 25 años de la desaparición de dos grandes escritores peruanos" (*RI,* 287-296), and F. Díez de Medina studied a creation myth of the Andes in "El tiempo mítico" (*RI,* 25-31). R. E. Warner noted "Mexican Pseudonyms and Initials" (*HR,* 324-335). Translations of Spanish American prose published during the year were: R. Palma's *Knights of the Cape,* by H. de Onís (Knopf); R. Rojas' *San Martín, Knight of the Andes,* by H. Brickell and C. Videla (Doubleday, Doran); and A. Costa du Rels' *Bewitched Lands,* by S. E. Grummon (Knopf).

In poetry, the best work of the year was the English translation of Ercilla's *La Araucana,* by C. M. Lancaster and P. T. Manchester (Vanderbilt). Three studies of Andrés Bello were: P. Grases' "Don Andrés Bello y el Poema del Cid" (*RI,* 243-286); W. H. Bohning's article on "Andrés Bello's Imitations of Victor Hugo" (*HR,* 60-67); and M. Romera-Navarro's "Un soneto de Heredia atribuído a Bello" (*HR,* 197-203). C. Carpio's "Ideas estéticas en las Antologías de Carlos García Prada" (*RI,* 209-215) is a study of particular value because of its survey of García Prada's analysis of the Colombian poetry he knows so well. Studies of two individual Colombian poets were J. Arango Ferrer's "Germán Pardo García, o El poeta de la desolación" (*RI,* 33-44), and N. Bayona Posada's "Rafael Pombo" (*RI,* 217-241). A valuable little anthology of "22 Poemas" by A. Torres Ríoseco was published (*RI,* 173-200), with an excellent introductory study of the personality and poetic work of the Chilean poet by C. García Prada (*RI,* 167-172). J. Mallo wrote of "Las relaciones personales y literarias entre Darío y Unamuno" (*RI,* 61-72), and E. Santandreu Morales published an interpretive study of the Uruguayan poetess in her "Delmira Agustini, Ala y llama" (*RI,* 45-59). J. B. Rael's "Un cantar hallado en Tucumán" (*RI,* 73-77) compared versions found in New Mexico and Colorado with that of Argentina.

There was a rather notable increase of interest in 1945 in the Spanish American theatre. H. Kurz made a valuable contribution to the study of the Argentine theatre in his "The *Cuadernos* of the Instituto Nacional de Estudios de Teatro" (*Hisp,* 212-219). Equally valuable were "Notes on Puppetry in Mexico" (*Hisp,* 199-207), by A. M. Coe, and J. K. Leslie's "Italian Plays and Players in Montevideo (1835-1845)" (*Ital,* 124-132). A critical article, long needed because of its sober consideration of the weakness as well as of the strength in the work of the dramatist, was J. P. Echagüe's "Florencio Sânchez" (*RI,* 9-24), and T. Apstein wrote of "Samuel Eichelbaum, Argentine Playwright" (*BA,* 237241), giving the plots of several plays.

COMPARATIVE LITERATURE

"Comparative Literature; Past and Future, American Colleges and Universities" (*SP,* 440-451), with its account of the scientific approach to the comparative study of literature and a brief history of such study in the United States, was published by U. T. Holmes, Jr. R. H. Cline studied "The Influence of Romances on Tournaments of the Middle Ages" (*S*, 204-211), while E. G. Mathews followed "The Murdered Substitute Tale" (*MLQ*, 187-195) through different literatures. "Perceval's Father and Welsh Tradition" (*RR*, 3-31), by H. Newstead, and two articles by R. S. Loomis—"The Combat at the Ford in *Dido Perceval* (*MP*, 63-71) and "Morgain la Fée and the Celtic goddesses" (*S*, 183-203)—were studies of the important contribution of Welsh legend to the shaping of Arthurian romance. Two studies of the influence of French literature on Chaucer were: J. Parr's "Chaucer and *Partonope of Blois*" (*MLN*, 486-487) and R. M. Smith's "Chaucer's 'Castle in Spain' (HF 1117)" (*MLN*, 39-40). G. Fellheimer noted the influence of Guicciardini on Holinshed by way of Fenton's translation of the Italian *Storia d'Italia*, in his "Geoffrey Fenton's *Historie of Guicciardini* and Holinshed's *Chronicles* of 1587" (*MLQ*, 285-298). Two other studies of literary influence were: "The *Manuel des Péchés* and an English Episcopal Decree" (*MLN*, 439-447), by D. W. Robertson, Jr., and B. J. Whiting's comparison of *La farce du raporteur* with *Gammer Gurton's Needle* in "Diccon's French cousin" (*SP*, 31-40). D. F. Atkinson identified "One R. P." (*MLQ*, 3-12) as a Robert Parke, author of a series of Elizabethan translations from the Spanish. In "Pope and Malebranche: A Note on the *Essay on Criticism*" (*PQ*, 65-70), V. M. Hamm called attention to Pope's indebtedness to the French author, and, in the modern period, S. Ezban's "Maurice Baring et la France" (*PMLA*, 503-516) noted the enthusiastic appreciation of the French language and literature of that English author.

LATIN LITERATURE*

By GEORGE DEPUE HADZSITS

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INTRODUCTORY

The vitality of classical scholarship was strikingly illustrated by the highly successful meetings of the American Philological Association and of the American Archaeological Institute, held in Cincinnati Dec. 27-29, the first regular meetings of these societies since the war.

The fate of the "Liberal Arts College", is still the concern of all thoughtful people, and that fate is closely associated with the future of "classical" studies.

Mark van Doren's *Liberal Education* will, no doubt, be quoted frequently, and the Harvard Report on *General Education in a Free Society* (*C J*. 41, 87-89) will exert a wide influence. *An Analytic Definition of Liberal Education*, by N. B. Johnson (*C J*. 41, 12-15) deserves a wide reading because of its emphasis on the perspectives that a liberal education must have. Without these, our "Liberal Arts College" shall be lost.

Although appearing before 1945, special mention should be made of Ralph Turner's *The Great Cultural*

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* Periodicals are abbreviated as follows: A H R, *American Historical Rev.*; A J A, *American Journal of Archaeology*; A J P, *American Journal of Philology*; C B, *Classical Bulletin*; C J, *Classical Journal*; C O, *Classical Outlook*; C P, *Classical Philology*; C Q, *Classical Quarterly*; C R, *Classical Rev.*; C W, *Classical Weekly*; H S C P, *Harvard Studies in Classical Philology*; H Th R, *Harvard Theological Rev.*; Is., *Isis*; J H I, *Journal of History of Ideas*; J R S, *Journal of Roman Studies*; Lang., *Language*; Ph Q, *Philological Quarterly*; Spec., *Speculum*; P A P A, *Proceedings of the American Philological Association*; T A P A, *Transactions* of the same; Verg., *Vergilius*; Y C S, *Yale Classical Studies* (all references are to 1942).

Biographical information will be found in lists of "Recent Publications," appearing in *C W*, and in "Recent Books," listed in *C J*, as well as under "Classical Articles in Non-Classical Periodicals" which *C J* also publishes.

Traditions (McGraw-Hill), which has been called "the most provocative and stimulating work" since Benjamin Farrington's *Science and Politics in the Ancient World (cf,* rev., *C.J.* 40, 234-238.)

Henry Harmon Chamberlin writes in spirited fashion in defense of classical and cultural education *(C.J.* 40, 321-330), leaving us only two alternatives, "Classics or Chaos." Another stirring defense is that of Dorothy Thompson (*C.O.* 22, 65-66), entitled "The Classics in American Education."

"Classicism as a Contemporary Guide," by Prof. W. R. Agard *(C.J.* 40, 387-397) is a valuable contribution to the literature on the importance of maintenance of classical studies, written by the author of *Medical Latin and Greek* (P. B. Hoeber, N. Y.) and of *What Democracy Meant to the Greeks* (Univ. of North Carolina Press).

The topic of "Latin as an International Auxiliary Language" is ably discussed (*C.O.* 22, 49-50) by Norman J. DeWitt, and a brilliant article on the same subject (*C.O.* 22, 85-86) is by that accomplished Latinist, Goodwin B. Beach, who has demonstrated the practical and the possible use of Latin in Colloquial speech.

LITERATURE

H. Fränkel's *Ovid, A Poet Between Two Worlds* (Univ. of California Press) is a brilliant book that will go far in creating a proper estimate of that extraordinary poet about whom successive centuries have held widely divergent views. It is a great achievement to assess his value for the twentieth century *(cf.,* also, E. K. Rand, *Ovid and His Influence,* Longmans, Green).

Prof. E. Adelaide Hahn writes on "The Characters in the *Eclogues*" (*TAPA* 75, 196-241) and argues that Octavian is the *iuvenis* of *Eclogue 1,* that Julia is the *puer* of *Eclogue 4,* that Daphnis in *5* is Julius, that Silenus in *6* is Siro, while a number of characters are thought to represent Vigil. Professor Hahn writes, as usual, with remarkable learning, this time, on topics often discussed before, but with well-fortified conclusions of her own about these problems and also about the chronology of the Eclogues. For another very important discussion of some of these problems, see Prof. E. L. Highbarger, "Notes on Vergil's *Bucolics*" (*C.P.* 40, 43-45).

Agnes Kirsopp Lake Michels writes on "The Golden Bough of Plato" (*A.J.P.* 66, 59-63), arguing for her theory that the golden bough of Virgil's Sixth *Aeneid* is not a bit of folklore at all, but a literary allusion, whereby she maintains that Virgil used Plato and the device of a myth as a means of indicating Aeneas' journey to Hades, a mere dream.

"The *Bucolics* and the Medieval Poetical Debate," by Betty Nye Hedberg (*TAPA* 75, 47-67), argues, convincingly, that "contrary to general assumption, the pastoral singing contest and the medieval debate have only a superficial similarity." Such studies as this are exhibitions of the most critical scholarship that undertakes, in this case, to trace the literary lineage of an important medieval practice and relate it to the proper classical antecedent of poetical debate in the rhetorical schools.

As stated in THE AMERICAN YEAR BOOK (1944, p. 915), W. C. Greene prepared a most timely article on "Some Ancient Attitudes toward War and Peace." In his study of "War in the *Aeneid*" (*C.J.* 40, 261-273), W. H. Alexander also reminds us of some valuable lessons to be learned from ancient sources, going so far as to claim that the *Aeneid* is an excellent commentary on Napoleon's testimony on war! It will surprise the nonclassical reader to learn that Virgil pays heed to diplomatic and political maneuvers, to propaganda, to the questions of industry and warfare, to the medical corps (cf., also, "Virgil and War in the *Aeneid*," *C.J.* 41, 104-107), by George E. Duckworth, who argues the point that Virgil was, however, not a militarist, but a lover of peace.

"Some Sound-Effects in Virgil," by S. Whateley, in *Greece and Rome*

(14, 17-28), establishes the thesis that the poet was abnormally sensitive to sounds and sensitively aware of the *discors concordia* of Nature.

"We Want a Vergilian Peace," by B. L. Ullman (*C.J.* 41, 1-3), is the ringing title of a stimulating essay.

R. C. Trevelyan, in *Translation* of *Virgil: Eclogues* and *Georgics* (Cambridge Univ. Press), demonstrates that he is at once a fine classical scholar and distinguished translator.

The Death of Virgil, by Herman Broch (Pantheon Books, New York), translated by Jean Starr Untermeyer, is a memorable account of Virgil's broodings on life and death in the last 24 hours of his life.

In his "What are *teretis plagas* (Horace, *Odes* 1.1.28)," Dr. William Hardy Alexander (*TAPA* 75, 15-19) boldly suggests a new interpretation of a well-known passage in Horace. It will be necessary in the future to include among older interpretations the suggestion that *teretis* means "bulging," because of Dr. Alexander's keen and incisive study of a group of words concerned with an exciting moment in boar-hunting.

H. B. Jaffee, *Horace: An Essay in Poetic Therapy* (Univ. of Chicago Diss.), (*C.P.* 40, 50-52) is concerned with Horace, as artist and moralist (a critical rev. appears in the *C.W.* 38, 132).

W. H. Alexander continues his *Seneca's Dialogues* (Univ. of California Press)—*The Text Emended and Explained* (*C.W.* 38, 195-196, *cf.* also, his illuminating "Seneca's *ad Polybium de Consolatione*; a Reappraisal," *Trans. of the Royal Society of Canada,* 37, 33-35).

J. M. K. Martin *Greece and Rome* (14, 64-71) discusses "Seneca the Satirist" and, in particular, analyzes the meaning of the baffling essay *Apocolocyntosis.*

An excellent literary article on "Poets and Philosophers" by O. J. Todd (*C.J.* 41, 49-71) discusses, among other interesting topics, poets and their own prophecies of renown. O. J. Todd also writes on "Charon, the *Portitor*" (*C.P.* 40, 243), an interesting exposition of the semasiological development of the word *portitor,* the boatman, and the toll-gatherer.

"Notes on Tacitus," *i.e.,* his style, by G. B. A. Fletcher (*A.J.P.* 66, 13-33), is penetrating and thought-provoking.

Latin Pseudepigrapha—A Study in Literary Attributions, by Evelyn Holst Clift, is a remarkable achievement. It is a study of a great number and variety of literary productions, from the Plautine period into the Augustan Age, undertaken to prove the authenticity or the false attribution of these works to authors associated with them, and to clarify the reasons for such association (Furst, Baltimore).

"Notes on the Style and Vocabulary of Cassiodorus' *Institutiones*" (*C.P.* 40, 24-31) is an important analysis of the literary technique of the man who transformed the monastery into a theological school, by Prof. L. W. Jones, the well-known medievalist (*cf.* "Where are the Prickings?"—later, in this review).

In "The Library of the Angevin Kings at Naples," Cornelia C. Coulter (*TAPA* 75, 141-155) discusses the significance of the books and other materials in the Neapolitan library for the years A.D. 1280-1342, for our knowledge of the intellectual interests of the time. This was the period of the finest Neapolitan culture in the Middle Ages. Her most interesting discussion of many acquisitions includes devotional and liturgical books, and theological works; involves references to eminent personalities, as Thomas Aquinas and Marco Polo; records the relatively few classical texts available there; and suggests, also, the possible influence of this library upon the early life of Boccaccio.

HISTORY

Another *History of the Roman World* has appeared. Every year witnesses the production of such works, which are the best possible proof of the recognized need of knowledge of the historical development of the ancient world—for our present world. The author is E. T. Salmon, who traces that history from 30 B. C. to A. D. 138 (the sixth volume in the notable *Macmillan History of the Greek and Roman World Series;* rev., in *C.W.* 38, 164-166). Mention should be made here of *Modern Problems in the Ancient World* (Univ. of Texas Press), by F. B. Marsh (*A.J.P.* 66, 69-70).

Prof. W. L. Westermann's brilliant "Between Slavery and Freedom" (*A.H.R.* 50, 213-227), analyzes definitions of these terms and their application to economics, politics, etc. (*cf.*, also, his "Slave Maintenance and Slave Revolts," in *C.P.* 40, 1-10).

Elias J. Bickerman's fascinating "An Oath of Hannibal" (*TAPA* 75, 87-102) is an examination of the Greek text of this Oath, as it appears in Polybius, with a view to proving that the text we have is an official translation from the Punic. The great importance of this observation will be evident to all, and Dr. Bickerman proposes to discuss later the diplomatic and religious features of the Oath. His "*Bellum Philippicum:* Causes of the Second Macedonian War" (*C.P.* 40, 137-148) is particularly valuable for giving both Greek and Roman views.

G. C. Richards' "Polybius of Megalopolis, the great Admirer of Rome" (*C.J.* 40, 274-291) admirably sets forth the importance of the Greek historian, as the first and greatest apologist of Rome who tried to reconcile Greece to her fate.

Prof. Eva M. Sanford contributes a learned article on "Roman Business Men in the Provinces," which is of first importance for all students of economic history (*C.O.* 22, 33-35).

In the journal, *Greece and Rome,* the distinguished classical scholar, F. E. Adcock, author of *The Roman Art of War, under the Republic,* discusses a theme of perennial interest, "Women in Roman Life and Letters," (*G. and R.* 14, 1-11).

Currency in Roman and Byzantine Egypt, by L. C. West and A. C. Johnson, is another production of the Princeton University Press, in the *Princeton University Studies in Papyrology.*

C. H. V. Sutherland, "*Aerarium* and *Fiscus* during the Early Empire, Augustus to Trajan" (*A.J.P.* 66, 151-170) is another important study of imperial finances.

"Comment and Conjecture on Military Topics" (*C.W.* 38, 188-191) includes the interesting article of Prof. S. L. Mohler, on "Caesar and Channel Tides."

"Picturesque Ways of Estimating and Suggesting the Size of Huge Armies" is both informing and entertaining, as is all of the work of Dr. Eugene S. McCartney (*C.J.* 40, 358-364).

Alfred Powers, *Hannibal's Elephants* (Longmans, Green), is significant for students of warfare.

Walter Allen's "Cicero's House and *Libertas*" (*TAPA* 75, 1-9) is an exceedingly interesting discussion of the bitter feud between Cicero and Clodius which had resulted in Cicero's banishment in 58 B.C. Dr. Allen analyzes the motives that led Clodius to erect a shrine to *libertas* on part of the site of Cicero's appropriated Palatine home and likewise explains Cicero's motives in seeking to recover and rebuild his home and remove the sting involved in the charges against his reputed tyrannical procedure.

In her scholarly study of "The Learned Professions in the Theodosian Code," E. M. Sanford adds to her reputation as an historical student and adds to our knowledge of the provisions that were made for state physicians, grammarians, teachers, and students who came to Rome. It is especially interesting to observe that at the University in Constantinople a full classical curriculum was preserved by a Christian Emperor (*C.J.* 40, 544-552). Prof. Clyde Pharr writes with authority on "The Text and Interpretation of the Theodosian Code" (*A.J.P.* 66, 50-58), and on "The Text of Gratian's *Decretum*" (*A.J.P.* 66, 255-265).

"Sparsiones" is the title of a brilliant study of an institution in ancient Rome, not sufficiently well-known even by scholars. Hugh Nibley discusses the practices and the actors of this symbolic ceremony, which was a heritage of the Golden Age and which has counterparts in many later Christian ceremonies (*C.J.* 40, 515-543).

PAPYRI

C. W. Keyes, H. Liebesny, and W. L. Westermann's *Columbia Papyri* (Columbia Univ. Press) is praised as of the "highest quality" (*C.J.* 40, 367-369), as is *Currency in Roman and Byzantine Egypt* (mentioned previously), by West and Johnson (another work in papyrology).

Papyri and Ostraca from Karanis (vol. vi of the *Michigan Papyri,* Un. of Michigan Press), by H. C. Youtie and O. M. Pearl, maintains the high standard of these well-known scholars.

"Evidences of Christianity in Egypt during the Roman Period" H. I. Bell, argues for the existence of a Christian community at Alexandria in the first century, which is much earlier than had been previously supposed. The author cites Biblical and theological texts on papyri as evidence of the earlier development of Christian minorities, however small, which prepared the way for the predominantly Christian population of the fourth century (*H. Th. R.* 37, 185-208).

RELIGION AND PHILOSOPHY

Prof. Eugene Tavenner presents a valuable study of "Roman Religion with Especial Relation to Vergil" (*C.J.* 40, 198-220). As all students of Roman Religion know, the religious experience of the Romans developed through manifold phases from primitivism to a highly developed form of belief and cult. Dr. Tavenner's article clarifies the religion of the Romans, as reflected in Virgil's poetry, in the light of that long experience.

The excellent review, by D. M. Robinson, of R. Lattimore's *Themes in Greek and Latin Epitaphs* (*C.J.* 41, 38-41) is as illuminating as the book itself and both should be read for the interpretations of Death and the attitudes toward Death, as reflected in the ancient inscriptions. The subject is one of prime interest to the student of Christian thought.

Prof. Ruth Ellis Messenger adds to her reputation as a foremost scholar in the field of hymnology by her article, "The Mozarabic Hymnal" (*TAPA* 75, 103-126), which presents a study of Latin hymns used in medieval Spain before A.D. 1085. The importance of this fine study lies in a revelation of the culture and historical environment these hymns offer and, consequently, the light they throw upon a period of the "Dark Ages."

"Comment and Conjecture on Virgil" (*C.W.* 38, 170-172) includes a brief but significant discussion of "Piety in the Character of Aeneas." J. W. Hritzu argues for development in degree of piety (or, devotion to deity) of the hero, Aeneas.

Margaret Bieber's interesting article, "Honos and Virtus" (*A.J.A.* 49, 25-34) discusses the two figures guiding the horses of the quadriga in the procession, represented in the famous and beautiful reliefs of the Arch of Titus.

LINGUISTIC AND ARCHAEOLOGICAL

"Ictus, Accent, and Statistics in Latin Dramatic Verse" raises some questions and offers some tentative answers about problems that are very troublesome to students of Latin verse. Among other conclusions, Prof. Kenneth M. Abbott rejects the theory of stress ictus in Latin verse. Yet ictus variations from the position of the word accent are recognized in a paper that is humorous, provocative, and scholarly (*TAPA* 75, 127-140), (*cf.,* his equally learned paper on "The Grammarians and the Latin Accent" in the *Oldfather Studies,* noticed in The American Year Book, 1944, p. 917).

Meriwether Stuart discusses "A Faience of Augustus" (*A.J.A.* 48, 171-175). It is regarded as an unmistakable portrait of Augustus, found in Egypt, now in the Metropolitan Museum of Art.

A most timely and, likewise, valuable article is that of Miss R. L. Deutsch, "The Ancient and Modern Atom" (*C.J.* 41, 97-103). It well illustrates the need of our knowing the history of science in order to realize the proper relation between scientific progress and social progress (*cf.* K. C. Bailey, *The Elder Pliny's Chapters on Chemical Subjects,* London, Arnold).

Bruno Meinecke's "The Medical Conceptions of a Roman Layman" is an extremely interesting study of Cicero's knowledge of and attitude toward current medical knowledge and practices (*C.J.* 41, 113-118).

"Where are the Prickings?" is the title of Dr. Leslie Webber Jones' article (*TAPA* 75, 71-86), which calls attention to the importance of these "prickings" for palaeographers in order to determine the dates of manuscripts all the way from *ca.* 300 to *ca.* 1300 A.D.; the country the manuscripts came from; the *scriptorium;* and even the scribe. Dr. Jones raises a study of these punctures in the manuscript page to the level of a severe science and, in doing so, follows the lead of the late Edward Kennard Rand.

BRIEF MENTION

"Laudatores Temporis Acti," in Latin literature by Edmund Hunt (*C.J.* 40, 221-233). J. N. Hough, "The *Numquid Vis* Formula in Roman Comedy" (*A.J.P.* 66, 282-302). "The Meaning and Use of *Sed Enim*", by Prof. Joseph Fontenrose (*TAPA* 75, 168-195). "The Genitive Absolute in Latin," E. L. Bassett (*C.P.* 40, 108-114). Christopher M. Dawson, *Romano-Campanian Mythological Landscape Painting* (Yale Classical Studies, IX). F. W. Beare, "Books and Publication in the Ancient World" (*University of Toronto Quarterly* 14, 150-167). *Documents of Dying Paganism: Textiles of Late Antiquity in Washington, New York, and Leningrad,* by Paul Friedländer (Univ. of California Press—for an excellent review of this important study, see *J.R.S.* 35, 132-133). N. W. DeWitt writes an illuminating essay in the *University of Toronto Quarterly* (14, 250-255) on "Epicureanism and Christianity." H. Mattingly, "The First Age of Roman Coinage" (*J.R.S.* 35, 65-77) is authoritative and interesting.

It is a pleasure to announce the appearance of a new Classical periodical: *Traditio: Studies in Ancient and Medieval History, Thought, and Religion,* (for description, *cf.* *C.P.* 40, 57-58).

GREEK LITERATURE

By Royal Case Nemiah
Professor, Dartmouth College

GENERAL

The year 1945 saw a further decline in both the quantity and quality of the work in the field of Greek studies. Owing to the blighting effect of war, the "raw materials" for investigation have been cut off, as is particularly apparent in the field of archaeology. The impossibility of international cooperation among scholars has been a serious barrier in the way of progress in research in Greek studies as well as in other areas of advanced study, though, on the credit side of the account should be mentioned the increased number of foreign scholars now engaged in investigation in this country. As evidence of the small volume of production in this field may be mentioned the fact that only one new volume appeared in the Loeb Library (Greek Series No. 373): the third volume of *Isocrates* by L. Van Hook. With the end of the war, the increased facilities in communication, and the release of many scholars from war duties, we may look forward hopefully to an increased volume of significant contributions to Greek scholarship.*

LITERATURE AND LITERARY CRITICISM

Critical investigation of the manuscript tradition of an author is always an important event in classical philology. Following up his fine work on Aeschylus (*cf.* THE AMERICAN YEAR BOOK, 1944, 918), A. Turyn contributes "The Manuscripts of Sophocles" to *Traditio* (2, 1), a sound contribution to Sophoclean scholarship. He has also published a critical edition of Pindar, *Pindari Epinicia* (*Polish Institute Series, No. 5*). A contribution to the ultimate solving of the riddle of the Minoan language is A. E. Kober's "Evidence of Inflection in the 'Chariot' tablets from Knossos" (*AJA* 49, 143).

HOMER

A distinguished addition to the long line of translations of Homer is Smith and Miller's *Iliad of Homer* (Macmillan, 1944), a line-for-line version in dactylic hexameters. G. M. Bolling in "Movable *Nu* at the End of Homeric Verses" (*CP,* 40, 181), shows that ancient usage in this matter was varied; that Ptolemaic scribes used *Nu* to indicate a pause at the end of a verse. J. A. Scott in "Homer and Hector" (*AJP,* 66, 187) maintains that Hector did not belong to the pre-Homeric tradition but was a creation of Homer. P. C. Wilson (*CP,* 40, 45) comments on *Iliad I,* 116ff.

LYRIC AND DRAMATIC POETRY

W. C. McDermott (*CJ,* 40, 168) comments on Simonides frg. 92, the epigram on the Spartans who died at Thermopylae, and on Cicero's translation of it. R. A. Lattimore (*CP,* 40, 121f.) has a note on the interpretation of Pindar's *Nemean Ode 7* (70-74). A noteworthy publication in this field is G. Norwood's *Pindar* (Univ. of Calif. Press, 1945). An excellent book on the whole field of ancient drama, both Greek and Latin, is P. W. Harsh's *A Handbook of Classical Drama* (Stanford Univ. Press, 1944). H. W. Miller, in an interesting article entitled "Medical Terminology in Tragedy" (*TAPA,* 75, 156), notes the influence of medical vocabulary on that of tragedy. R. A. Lattimore (*AJP,* 66, 313) has two notes on the text of the *Agamemnon* of Aeschylus, (vv. 555-557 and 575-579). P. H. Epps in "Sophocles: Mere Conservative or True See-R?" (*SPUNC,* 42, 427) discusses Sophocles from the point of view of Matthew Arnold's criticism. H. W. Miller has a note on "Conversational Idiom in Aristophanes" (*CW,* 38, 162), and W. A. Clebsch (*ibid.* 163) an emendation of A's *Lysistrata* (1174).

MISCELLANEOUS AUTHORS

S. Wilcox again (*cf.* THE AMERICAN YEAR BOOK, 1944, 918) comes to the defense of the rhetoricians in his "Isocrates' Fellow Rhetoricians" (*AJP,* 66, 171). The rhetoricians' chief aim, he says, was not to give instruction in writing forensic speeches but to produce statesmen, writers, and gentlemen of culture. They were not teachers of chicanery and deceit. E. H. Haight continues her work in ancient fiction in *More Essays on Greek Romances* (Longmans, Green, 1945), in which she treats of early fiction, the Alexandrian romance, and Boccaccio's debt to Apuleius. P. A. Clement (*AJP,* 66, 192) tries to fill up a lacuna in Plutarch's version of Aesop's fable of the *Fox and the Crane.* (Plutarch's *Moralia,* 614E). F. W. Lenz, in "The Monkeys of Archilochus" (*AJP,* 66, 34), attempts to explain an obscure passage in Aristides (II, 397, 3ff. ed. Dindorf) by use of the scholia and a reference to Aesop. R. Mandra in "Theocritean Resemblances" (*PAPA,* xxvi) makes a study of Theocritus (1-15) and indicates survivals from his time to present day Sicily.

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* Abbreviations: *AJA, American Journal of Archaeology; AJP, American Journal of Philology; CJ, Classical Journal; CP, Classical Philology; CW, Classical Weekly; Hes., Hesperia; Trad., Traditio; UCPCP, University of California Publications in Classical Philology; HTR, Harvard Theological Review; IG, Inscriptiones Graecae; SPUNC, Studies in Philology of the University of North Carolina; TAPA, Transactions of the American Philological Association; PAPA, Proceedings of the American Philological Association.*

LITERARY STUDIES

A most distinguished work in this field is W. C. Greene's *Moira: Fate, Good, and Evil in Greek Thought* (Harvard Univ. Press, 1944), in which he traces these spiritual forces throughout Greek literature and philosophy. O. J. Todd, in "Poets and Philosophers" (*CJ*, 41, 49), studies the relationship of philosophy and poetry in Greek and Latin literature. C. M. Dawson and A. E. Raubitschek, in "A Greek Folksong Copied for Lord Byron" (*Hes.* 14, 35), give the original text, translation, and Byron's first draft of his *Translation of the Romaic Song, etc.,* together with introduction and commentary; also the original Greek text of his *Translation of a Romaic Love Song.*

PHILOSOPHY

As is natural, the major portion of the work in Greek philosophy is to be found in studies in Plato and Aristotle. It is to be hoped that in the near future, without slighting these fields, more attention will be devoted to Presocratic philosophy and the post-Aristotelian schools. In this latter field is to be noted a paper by K. von Fritz, "Nous and Noein and Their Derivatives in Presocratic Philosophy (excluding Anaxagoras). Part I, From the Beginnings to Parmenides (Xenophanes, Heraclitus, Parmenides)" (*CP*, 40, 223). This is a continuation of a similar treatment of "Nous and Noein in the Homeric Poems" (*cf.* THE AMERICAN YEAR BOOK, 1943, 894).

A very interesting article on "Pythagorean Communism" by E. L. Minar, Jr. (*TAPA*, 75, 34) should be noted. The first part of L. Spitzer's "Classical and Christian Ideas of World Harmony" (*Trad.* 2, 409) and R. Allers' "Microcosmus from Anaximandros to Paracelsus" (*Ibid.* 319) should be included here.

Notable work in the field of Plato and Aristotle has been done by H. F. Cherniss in two books: *Aristotle's Criticism of Plato and the Academy* (Baltimore, Johns Hopkins Press, 1944) and *The Riddle of the Early Academy* (Univ. of Cal. Press, 1945). In "Plato and Poetry" (*CJ*, 40, 481), T. S. Duncan writes on Plato's views as to the nature of poetry and its value (or lack of value) to the state. Noteworthy is the two-volume work of Hugo Perls: *Platon: Sa Conception du Kosmos* (Editions de la Maison Française, N. Y., 1945). R. G. Hoerber in *The Theme of Plato's Republic* (Diss. Washington Univ., St. Louis, 1944) tries to prove, but not too effectively, that the Republic deals with the effect of justice and injustice on the soul and that the state is used merely as an example. C. J. Treacy in "Body or Lower Soul?" (*PAPA,* 75, xxvii) holds that by "lower soul" Plato means a mean proportional between the "higher soul" and the body. In *Soul and Sieve* (Univ. of Cal. Publications in Class. Phil.), I. M. Linforth studies Plato's views on the nature of the soul in relation to Orphic mysticism, eschatology, and the myth of the Danaids. The problem of eastern origins is treated in Coomaraswamy's article, "Recollection, Indian and Platonic" (Supp. to *Jour. of Amer. Oriental Soc.,* No. 3, 1944). F. Steckerl in "Plato, Hippocrates and the Menon Papyrus" (*CP,* 40, 166), by a comparison of Plato's *Phaedrus* (270c ff.) and the treatise *On Ancient Medicine,* shows that the latter is by Hippocrates. J. D. Wild in *Plato's Theory of Man* (Harvard Univ. Press, 1945) stresses the relevance of Plato's philosophy to modern issues. J. A. Notopoulos continues his study of the influence of Plato on Shelley (*cf.* THE AMERICAN YEAR BOOK, 1943, 894, and 1944, 920) in "A Shelleyan Symbol" (*CJ,* 40, 170) discussing Shelley's use of the serpent as a symbol of eternity. The same author in "Aristophron, or Platonism and the Poetic Mind" (*CJ,* 40, 129) continues his former studies in the same field (*cf.* THE AMERICAN YEAR BOOK, 1944, 920).

F. W. Householder, Jr., in "The First Chapter of the Poetics" (*AJP,* 66, 266), takes issue with an article by Pitcher on the same chapter in the same journal (65, 340). In an article, "Definitive Note on the Enthymeme" (*AJP,* 66, 303), S. Simonson sums up: "The Aristotelian idea of the enthymeme, therefore, retains consistency with its four main classes of probabilities, infallible and fallible signs, and example." In "Aristotle's Good and Just Heroes" (*Philological Quarterly,* 24, 1), S. M. Pitcher gives a new interpretation of Aristotle's Poetics. Philip Merlan, in "The Successor of Speusippus" (*PAPA,* 75, xxvl), shows that, at the death of Speusippus, the members of the Academy thought of electing Aristotle as their head, indicating that at that time they saw nothing in his views incompatible with those of the Academy. N. W. DeWitt has a good article entitled "Epicurus and Leucippus" (*CW,* 38, 19), dealing with the attitudes of recent critics toward Epicurus.

HISTORY AND CIVILIZATION

In this field a rather wide variety of subjects was treated during the year. S. Smith, in "Middle Minoan I-II and Babylonian Chronology" (*AJA,* 49, 1), states that "Babylonian chronology can not be fixed without consideration of evidence from Crete." J. P. Harland, in "The Date of the Hellenic Alphabet" (*SPUNC,* 42, 413), states that "the Hellenes *in the eastern Mediterranean area* had begun to adopt the Phoenician letters and to devise the first true alphabet with vowels and consonants as early as *ca.* 900 B. C. if not in the latter part of the tenth century."

An important contribution to Greek legal history is G. E. Calhoun's *Introduction to Greek Legal Science* (ed. F. Zulueta, Oxford, Clarendon Press, 1944), which traces Greek legal thought through five periods from Homer to the Hellenistic Age. "Administration of Justice in Boeotia," by R. J. Bonner and G. Smith (*CP,* 40, 11), treats the subject from the earliest times to the first century B. C. C. A. Forbes, in "Expanded uses of the Greek Gymnasium" (*CP,* 40, 32), shows that Greek gymnasiums, though originally intended for sports and exercise, were later used for lectures, schools, libraries, military training, concentration camps, public feasts, courts, public meetings, religious festivals, burial places, and even massacres. W. L. Westermann, in "Slave Maintenance and Slave Revolts" (*CP,* 40, 1), discusses standards of slave maintenance and the first Sicilian slave revolt in 135-132 B. C. He also shows from inscriptions from Delphi that slaves were freed by sale to the god.

C. A. Robinson, Jr., in an interesting article, "Athenian Politics 510-486 B. C." (*AJP,* 66, 243), shows that the supporters of Peisistratus also supported Cleisthenes, as both were leftist politicians. He also shows that the Athenian government was lenient to tyrannists until Marathon. K. von Fritz (*ibid.* 196) has an interesting note: "Gerousia—Gerochia." J. G. Milne has an article, "The Economic Policy of Solon" (*Hes.* 14, 230), dealing chiefly with currency reform. Hermann Fraenkel in "The Immigrant's Bath" (*UCPCP,* 12, 293) notes the ceremonial bath that was a part of an immigrant's taking up residence in a new locality.

H. J. Wolff has an article on "Marriage Law and Family Organization in Ancient Athens" (*Trad.* 2, 43). The matter of the tribute lists is again discussed by H. T. Wade-Gery in "The Question of Tribute in 449/8 B. C." (*Hes.* 14, 212). In "Pericles and His Colleagues" (*AJP,* 66, 113) V., Ehrenberg discusses the method of selection of the Athenian strategoi, with sidelights on the democracy of Athens in the Fifth Century. R. Schlatter in his "Thomas Hobbes and Thucydides" (*Journal of the History of Ideas,* 6, 350) attributes many of Hobbes' fundamental political ideas to the fact that as a young man he translated Thucydides. J. A. O. Larsen's (*CP,* 40, 65) "Representation and Democracy in Hellenistic Federalism" discusses Hellenistic federal institutions, particularly of the second century. G. C. Richards has a good article, "Polybius of Megalopolis, the Greek Admirer of Rome," (*CJ,* 40, 274).

E. J. Bickerman in "An Oath of Hannibal" (*TAPA,* 75, 87) maintains that Polybius (7, 9) in his quotation of Hannibal's oath confirming his alliance with Philip V of Macedon, is using an official translation from Punic into Greek prepared by Hannibal's chancellery. The same author in "Bellum Philippicum" (*CP,* 40, 137) studies the causes of the Second Macedonian War as given by ancient historians, in order to throw light on Roman imperialism and Greco-Roman historiography.

C. Roebuck's "A Note on Messenian Economy and Population" (*CP,* 40, 149) is an important contribution, dealing chiefly with the Hellenistic period. F. Solmsen in "Comanus 'Of the First Friends'" (*CP,* 40, 115) supports Hubbell (*CP,* 1933) in believing that Comanus, the statesman under Ptolemy Philometor, and Comanus, the philologist contemporary with Aristarchus, were the same person, basing his conclusions on a papyrus in the Columbia University collection published by Westermann in 1938. "Note on the Alexandrian Calendar" (*AJP,* 66, 189) by D. Macnaughton deals with the relationship between the Alexandrian and Egyptian calendars. A significant contribution to the history of ancient law is R. Taubenschlag's *The Law of Greco-Roman Egypt in the Light of the Papyri 332 B. C.—640 A. D.* (N. Y. Herald Square Press, 1944). Another important work on this period is *"Currency in Roman and Byzantine Egypt* (Princeton Univ. Pr. 1944) by L. C. West and A. C. Johnson.

RELIGION

The dividing line between religion and philosophy is difficult to draw. In this section will be included material on religion from the historical, mythological, and artistic point of view. Religion, considered from the speculative angle, is included in the section on Philosophy. G. E. Mylonas (*CW* 38, 180) shows the importance of the Homeric Hymn to Demeter as a source for an understanding of Demeter worship and of the Eleusinian Mysteries in his article "Hymn to Demeter." In "The Thracian Pig Dance" (*CP,* 40, 98), L. L. Lawler and A. E. Kober discuss the nature of the Thracian "kolabrismos." They conclude that it must have been a fertility rite of a spirited and probably orgiastic nature. Another paper by L. L. Lawler, "The Dance of the Ancient Mariners," appears in *TAPA* (75, 20). It deals with the dances performed in Delos by sailors whose course lay near the island. They were of remote antiquity and of several varieties, several being of Minoan origin and showing evidences of fertility ritual and the ritual of the "Sacred tree."

R. G. Hoerber, in "Divine Communication in Thucydides" (*PAPA,* 75, xxv), notes two types of this phenomenon in the historian, one religious in the form of oracles and frontier sacrifices and the other superstitious: earthquakes, eclipses, etc. J. Fontenrose presents a study in comparative mythology in *Philemon Lot, and Lycaon* (U. of Cal. Pubs. in Cl. Phil. Vol. 13. No. 4). An interesting article is M. P. Nilsson's "Pagan Divine Service in Late Antiquity" (*HTR,* 38, 63). N. points out the similarity between ancient pagan ritual (*e. g.* at Epidaurus) and Christian ritual. Animal sacrifices began to die out in the Hellenistic age largely on account of expense, and daily offerings of a less pretentious nature were substituted. Incense and the burning of lamps were popular with the Greeks and were adopted by the Christians. Hymns were chanted and choruses were established in pagan ritual and adopted by the Christians. To the hymns were added speeches, hence the sermon. Many temples had daily services. The cult of Asclepius had different hymns at different hours, hence the "horae canonicae" of Christian liturgy.

ART AND ARCHAEOLOGY

This branch of Greek studies has probably suffered more than any other as a result of war conditions. There has appeared, however, *The Excavations at Dura-Europos Conducted by Yale University and the French Academy of Inscriptions and Letters. Preliminary Report of the Ninth Season of Work* (1935-36. Ed. by M. I. Rostovtzeff, A. R. Bellinger, F. E. Brown, C. B. Welles: Part I: *The Agora and*

Bazaar (Yale Univ. Pr. 1944, illustrated). The prehistoric period still receives deserved attention in V. Mueller's "Development of the 'Megaron' in Prehistoric Greece" (*AJA,* 48, 342) and in C. W. Blegen's "The Roof of the Mycenenaean Megaron" (*AJA,* 49, 35). H. E. Searls and W. B. Dinsmore in "The Date of the Olympia Heraeum" (*Ibid.* 62) place that temple in the sixth century. In "Notes on the Interior of the Hephaisteion" (*Hes.* 14, 246), O. Broneer discusses two problems in connection with that temple: I. "The Interior Colonnade" and II. "Treatment of Wall Surfaces."

G. M. A. Richter continues her important work in this field with *"Archaic Attic Gravestones* (Harvard Univ. Press, 1944); *Greek Painting: The Development of Pictorial Representation from Archaic to Greco-Roman Times* (N. Y. Met. Mus. of Art, 1944); and an illustrated article on "Polychromy in Greek Sculpture with Special Reference to the Archaic Attic Gravestones in the Metropolitan Museum" (*AJA,* 48, 321). On this last subject see also L. F. Hull's article, "Notes on the Colors Preserved on the Archaic Gravestones in the Metropolitan Museum" (*ibid.* 334).

A chemical study of ancient pigments may be found in E. B. Caley's "Ancient Greek Pigments from the Agora" (*Hes.* 14, 152). C. A. Robinson, Jr. (*AJA,* 49, 121) identifies the statue of Zeus found off Cape Artemision in 1926 as the Zeus Ithomatas of Ageladas (*cf.* THE AMERICAN YEAR BOOK, 1944, 922). In *Early Hellenic Pottery of Crete* (Princeton Monographs in Art and Archaeology, xxiii, Princeton Univ. Press, 1945), D. Levi shows that there was a well defined geometrical school in Cretan pottery and that Crete, with Cyprus and Rhodes, formed a bridge to western Greece (*Early Hellenic Pottery of Crete,* Princeton Monographs in Art and Archaeology XXIII, Princeton University Press, 1945). H. R. W. Smith in *The Hearst Hydria* (Univ. of Calif. Pubs. in Classical Philology, Vol. 1, No. 10) deals with the style and date of this hydria and also with the data derived from archaeology as throwing light on the date of the Kypselids.

In "Graeco-Egyptian Masks and Portraits in the Royal Ontario Museum" (*AJA,* 49, 52), M. McCrimmon shows that Egyptian elements had disappeared from such work and that they had become entirely Graeco-Roman. O. Broneer in his paper, "The Tent of Xerxes and the Greek Theater" (Univ. of Calif. Pubs. in Class. Arch.), tries to show the influence of this tent on the Greek stage. In his dissertation, *Documents of Dying Paganism* (Univ. of Calif., 1945), P. Friedlaender deals with ancient textiles. E. T. Newell is the author of a monograh entitled *The Byzantine Hoard at Lagbe* (Numismatic Notes and Monographs, No. 105 of the American Numismatic Society, N. Y., 1945). A. R. Bellinger, in "King Antiochus in 151/0 B. C." (*Hesp.* 14, 58), disagrees with Heichelheim in his paper on a Hellenistic coin (*Hesp.* 13, 362) and thinks it was not minted at Antioch.

INSCRIPTIONS AND PAPYRI

As a humanistic introduction to this section should be mentioned the article by W. and C. Buckler entitled "The Bearing of Inscriptions on Classical Literature" (*CJ,* 40, 148). This deals with the light thrown by inscriptions on classical writers and on their works and includes both Greek and Latin literature. A. E. Raubitschek discusses *IG* 1 .20) on the relations between Athens and Halikyai and dates it 427/6 B. C. (*TAPA* 75, 10). V. B. Schuman in "Two Greek Ostraka" (*TAPA* 75, 68) describes two ostraka given him in Egypt in 1927-31. One, a description of a piece of land, he dates at the middle of the second half of the second century A. D. The second, a receipt for a payment of a beer tax, he dates 211 A. D.

B. D. Meritt continues his valuable work in the field of inscriptions in "Attic Inscriptions of the Fifth Century" (*Hes.* 14, 61) and "The Argives at Tanagra" (*ibid.* 134). Both are illustrated and indexed. Some are new fragments of inscriptions already published. See also (*ibid.* 147) E. Vanderpool, "Two Inscriptions near Athens," illustrated and indexed. For further work of Meritt see "Three Attic Inscriptions" (*AJP* 66, 234), in which he discusses the nature and dates of three inscriptions already published in *IG*. F. Jacoby has an article (*Hes.* 14, 157) entitled "Some Athenian Epigrams from the Persian Wars," a discussion of a fragment of stone discovered by American excavators in 1932, published by J. H. Oliver (*Hes.* 2, 480) and considered to be an addition to an inscription published by Rangabé in 1855 in Antiquités Helléniques (2, 597). Jacoby believes that this inscription is about Marathon, that it is not an epitaph but was on a war memorial and that it was not by Aeschylus or Simonides.

The University of Michigan continued its important work with *Papyri and Ostraca from Karanis* by H. C. Youtie and O. M. Pearl (vol. 6 of *Michigan Papyri* and vol. 47 of *Michigan Humanistic Series*). Progress in the fields of epigraphy and papyrology has been of relatively small amount, owing to wartime conditions.

HUMANITIES

The vast flood of writing on educational theory and practice deals to a large extent, either explicitly or implicitly, with the problem of the Humanities. There is the perennial problem of the "Quarrel of the Ancients and the Moderns." It is safe to predict that, with the atomic age upon us, there will be no decrease in talk about the Humanities. A few articles under this heading deserve mention here. In "An Analytic Definition of Liberal Education" (*CJ,* 41, 12), N. B. Johnson gives his views on the place of the Classics in a liberal education. Similarly, W. R. Agard, in "Classicism as a Contemporary Guide" (*CJ,* 40, 387) pays tribute to the value of the Classics and to Sir Gilbert Murray as an eminent representative of classical studies. B. L. Ullman has an interesting article entitled "Trends in Greek and Latin Studies" (*SPUNC,* 42, 403), in which he traces the history of classical scholarship from the time of the founding of the University of North Carolina in 1795 down to the present time. Basing his conclusions on the increased number of publications in the field of the Classics during the last 70 years, he indulges in what may seem to some an unwarranted optimism as to the future of classical studies. C. T. Murphy writes on "The Job of Classical Education in Colleges" (*CW,* 39, 10).

MISCELLANEOUS

The number of dissertations in the field of Greek scholarship naturally shows a considerable decline, as such work comes mostly from the age group engaged in war service. The *Classical Weekly's* (March 19, 1945) list of titles in the whole field of classical scholarship shows only 17 items, including six in the field of New Testament studies. E. S. McCartney (*CJ,* 40, 358) has an article entitled "Picturesque Ways of Estimating and Suggesting the Size of Huge Armies," with references to Homer, Aeschylus, Herodotus, and Latin and modern authors. A. Feldman contributes "Thoughts on Thales" (*CJ,* 41, 4). H. N. Couch in *Beauty and Parting* (Brown University Bookstore, 1945) presents translations from the Greek poets.

SEMITIC LANGUAGES AND LITERATURES

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ARCHAEOLOGY

Some material of strictly archaeological nature that has, nevertheless, a distinct bearing on important problems confronting Semitic scholars, should be recorded here. The papers on the significance of the Temple in the Ancient Near East, which began in the *Biblical Archaeologist* VII in 1944 with discussions by Harold H. Nelson on the Egyptian Temple and by A. Leo Oppenheim on the Mesopotamian temple, were continued in 1945 in papers by G. Ernest Wright on the Temple in Palestine and Syria, and by F. V. Filson on the Temple, the Synagogue, and the Church. Angelo Segre's "A Documentary Analysis of Ancient Palestinian Units of Measure," in the *JBL* for September (pp. 357-375), discusses Measures of Capacity; Jewish Measures of Weight; Syrian and Palestinian Measures of Length; Syrian and Palestinian Measures of Land; and the relation between the Jewish cubit, the Royal Egyptian cubit; and the Measures of Capacity in Egypt and Palestine. In *BASOR* No. 96 A. J. Sachs discusses certain related matters in his paper "Some Metrological Problems in Old Babylonian Mathematical Texts." Of even greater importance is the long discussion of O. Neugebauer in *JNES* for January (pp. 1-38) on the "History of Ancient Astronomy: Problems and Methods," for while it includes Greek and even Hindu astronomy, it is primarily a study of the Egyptian and Babylonian material, and makes clear from this material that astronomy did not, as so often asserted, grow out of astrology, but really sprang from problems of the Calendar. Another study which, though not in the Semitic field, is of considerable interest to Semitic studies is that by Hildegard Lewy on "The Genesis of the Faulty Persian Chronology," in *JAOS* for December 1944 (pp. 197-214).

SEMITIC PHILOLOGY

Several studies are perhaps classified better under this heading than under the individual languages. T. J. Meek's Presidential Address at the December 1944 meeting of the Society of Biblical Literature, on "The Syntax of the Sentence in Hebrew," was printed in the *JBL* for March (pp. 1-13), and is at pains to stress the importance of paying attention to sentence construction, *i.e.* to syntax, as well as to grammar and lexicon. In the *JAOS* for June Frank R. Blake continues his "Studies in Semitic Grammar," this being Study III, and discussing the problems of (i) *e* for *a* adjacent to a guttural in Akkadian; (ii) the supposed influence of preceding and following *i* in Akkadian. F. W. Geer's short study of "The Treatment of the Emphatics in Akkadian," in *JNES* for April, is in the interests of showing that the well-known unwillingness of Akkadian to keep two emphatic consonants in a tri-consonantal root is really a regular phenomenon so that a rule may be stated that in a root where in other Semitic languages there will be two emphatic consonants Akkadian will regularly change one of them to the nearest non-emphatic sound. A. S. Yahuda's attack on the genuineness of the Mesha' inscription is rebutted by F. W. Albright on general and on specifically linguistic grounds, in *JQR,* XXXV (pp. 247-250). In the same journal (pp. 281-301), Wm. Chomsky has a paper on "How the Study of Hebrew Grammar Began and Developed," giving some account of the theories and controversies of the early grammarians of Hebrew from Saadya up to the time of the earliest Christian Hebraists of the Reformation period.

SUMERO-AKKADIAN

In *BASOR* No. 96, S. N. Kramer has an article "Dilmun, the Land of the Living" in which, by a fresh examination of the early texts which speak of Dilmun, he sees reason to locate this Sumarian Elysium or Abode of the Blessed, which is in some sort a precursor of the Paradise story, not in the neighborhood of Bahrain in Arabia, as formerly thought, but in southwest Iran. He continues the study of this matter in the first of the Supplementary Studies of the *BASOR*, entitled "Enki and Ninhursag, a Sumerian Paradise Myth." This gives text and translation with full commentary, and facsimiles of the tablets, and corrects in innumerable places earlier translations of this material. The study contains also an excursus on Sumerian Lexicography calling attention to the fact that recent studies have so advanced our knowledge of this tongue that the existing lexicons, even that of Deimel, are hopelessly out of date and can be used only with the greatest care. In *JAOS* for December 1944, A. Leo Oppenheim has rendered important service by publishing several pages of emendations to the texts in Harper's *Assyrian and Babylonian Letters,* so commonly used in teaching Akkadian, emendations which have been made possible by advances in our knowledge of the language used in Neo-Assyrian and Neo-Babylonian documents.

In *Old Assyrian Letters and Business Documents,* issued by the Yale University Press, Ferris J. Stephens has published 84 plates making available new material from the James B. Nies Collection at Yale. A combined study by A. Leo Oppenheim and Louis F. Hartman on "The Domestic Animals of Ancient Mesopotamia" in *JNES* for July (pp. 152-177), gives us the text of a broken tablet in the Metropolitan Museum, which proves to be the XIIIth tablet of a Sumero-Akkadian Lexical Series, and on the basis of Hartman's edition of the text, Oppenheim reconstructs the entire tablet, with commentary and word indices, from all the available material. The list is extremely useful, as it gives long series of words used in connection with such domestic animals as the sheep, goat, ox, and donkey. Dr. Oppenheim has also contributed to the *JQR* for October a series of "Assyriological Notes to the Old Testament." A new contribution to the growing mass of Nuzi studies is Pierre M. Purves' "Commentary on Nuzi Real Property in the Light of Recent Studies," in *JNES* for April, (pp. 68-86), which elucidates a number of points important for the understanding of economic transactions in the Nuzi period.

EGYPTIAN

G. Steindorff who collaborated with K. Seele in the volume *When Egypt Ruled the East,* has now collaborated with Hoyningen-Huene to produce a volume called *Egypt,* to which he contributes the text and his collaborator the photographs, resulting in a volume of quite peculiar interest to all concerned not only with Egypt but with the Ancient East in general. In *JNES* for July (pp. 178-212), there is a long discussion on "The Songs of the Harper," by Miriam Lichtheim, who takes up the representations of the Harper in the Old, Middle, and New Kingdom, collects and translates with commentary the various "Harper Songs," relates them to the XVIIIth Dynasty "Orchestra Songs," and concludes that, contrary to earlier theory, these "Harper Songs" do not conform to one type, but that there are at least four distinct literary strata in their development.

UGARITIC

Practically the whole May number of the *Biblical Archaeologist* is given over to a paper on "Ugaritic Studies and the Bible," by H. L. Ginsberg, which has a map and illustrations, and provides an unusually lucid introduction to the whole field of Ugaritic studies, as well as indicating the importance of this material for the interpretation of the Hebrew Scriptures. The same author discusses the "North Canaanite Myth of Anath and Aqhat," in *BASOR* Nos. 97, 98, offering a goodly number of fresh interpretations of difficult passages. In the

JBL for September (pp. 319-337), Cullen I. K. Story has studied certain Ugaritic parallels in his paper on "The Book of Proverbs and North West Semitic Literature."

BIBLICAL

Perhaps the outstanding event of the year for the Semitist in this field has been the publication of the *Westminster Historical Atlas of the Bible,* edited by E. G. Wright and F. V. Filson, where the excellence of the maps produced by a new technique and made in conformity with the latest results of excavation, is rivaled by the excellence of the explanatory text which accompanies them, and makes the volume indispensable to all students of the Semitic East. Another comprehensive work is M. S. and J. L. Miller's *Encyclopaedia of Bible Life,* which though not by scholars has sought to profit by the work of scholarship and is admirably illustrated. O. R. Sellars' "Israel's Belief in Immortality," in the *Biblical Archaeologist* for February, is a useful assembly of material, setting the Old Testament statements against the Egyptian, Mesopotamian, and Old Canaanite burial customs.

In *JBL* for September Steven T. Byington's "Hebrew Marginalia III," continues his investigations into words and meanings in the Hebrew Bible. In a solid book *The Ark, the Ephod, and the Tent of Meeting,* published as Vol. II of the Krolik Memorial Publications, Julian Morgenstern assembles material that he had been publishing in the *Hebrew Union College Annual,* in which he discusses in great detail the Semitic material which may throw some light on the origins of the Ark of the Covenant. The same writer's "Divine Triad in Biblical Mythology" in *JBL* for March (pp. 15-37), discusses the names El, Elyon, and Shaddai in their relation to North Semitic religion and mythology. Alexander Sperber's "Biblical Exegesis," which also appears in the March number of *JBL* (pp. 39-140) perhaps also belongs here, for it is a continuation of his polemic against the historical and comparative method in Biblical studies, and an assembling of more evidence in favor of his own purely descriptive method.

Notice should also be taken of Rolland Emerson Wolfe's book *Meet Amos and Hosea, the Prophets of Israel,* which attempts to present afresh the significance of the early Prophetic movement. Frank Zimmermann pursues his quest for Aramaic origins of Old Testament documents by seeking, in an article in *JQR* for July (pp. 17-45), on "The Aramaic Provenance of Qoheleth," to demonstrate that the book of Ecclesiastes is a translation from an Aramaic original.

ARABIC

In "The Response to Nature in Arabic Poetry" in *JNES* for July (pp. 137-151), G. E. von Grüenbaum breaks new ground in the study of the literary forms and motifs of Arabic poetry, and another breaking of new ground is the volume on the little known subject of *Arab Archery* (Princeton University Press), the collaboration of R. P. Elmer and N. A. Faris. In this illustrated volume, a late mediaeval Arabic MS entitled "A Book on the Excellence of the Bow and Arrow, and the Description thereof," is translated and interpreted, Dr. Elmer providing the technical knowledge of archery, and Dr. Faris, whose native language is Arabic, handling the Arabic text. It is a distinct contribution to both Arabic and to Mediaeval studies.

An unusual study is one by A. S. Halkin in the *Proceedings of the American Academy for Jewish Research* XIV (pp. 25-145), on "Classical and Arabic Material in Ibn Aknin's Hygiene of the Soul." Joseph B. Judah Ibn Aqnin was a XIIIth Cent. disciple of Maimonides, and this article extracts from his as yet unpublished *Tibb an-Nufus* the almost 300 aphorisms, which he edits, and translates, and points to their analogues in Muslim and classical literature. In the same *Proceedings* (pp. 221-251), Wolf Leslau published some "Texts on Yemenite Folklore," gathered from a Yemenite Jew from San'a now resident in New York, which are an interesting and important contribution to our knowledge of the Judaeo-Arabic of South Arabia. The same writer deals with yet another dialect of Judaeo-Arabic in an article in *JQR* for July (pp. 61-78) on "Hebrew Elements in the Judaeo-Arabic Dialect of Fez," which is a grammatical study based on the recent French volumes of texts in the dialect used by the Moroccan Jews in Fez.

In the *JAOS* for March, H. Henry Spoer publishes another section of the Poems of Nimr ibn 'Adwan, which he and Elias M. Haddad collected in the environs of Damascus. The present group contains poems XXI-XXX in transliteration and translation with explicative notes. The paper "Islam's Conception of Human Destiny," by Wm. Thomson in the *Moslem World* for October offers much stimulating discussion of certain terms important in the earliest texts from Islam. In the same journal for April, Ilse Lichtenstädter, in an article on "Arabic and Islamic Historiography," traces the development of this branch of Arabic studies from the ancient genealogical lore and poetical glorification of the events in tribal life found among the Bedouin before Islam, through the collections of traditions and biographies and the Annals of the early Caliphate, to the really scientific study of history in the work of Ibn Khaldun.

It is well known that the Arabs collected the genealogical trees of their horses as well as their men, and a peculiarly interesting contribution to the study of Arabian Hippology is Carl R. Raswan's "Vocabulary of Bedouin Words Concerning Horses," published in *JNES* for April (pp. 97-129). Nelson Glueck's account of the "Wadi Sirhan in North Arabia," in *BASOR* No. 96, though it is for the most part a topographical account of the lifeline between the northern and southern parts of the Nabataean kingdom, has considerable interest for the early history of that Arab kingdom. The philologist, as well as the historian of art, will profit from the discussion by M. Aga Oghlu in his "Brief Note on Islamic Terminology for Bronze and Brass" in *JAOS* for December 1944.

ABYSSINIAN

Three studies of Wolf Leslau in this little developed field of Semitic studies call for special mention. His book *Gafat Documents: Records of a South-Ethiopic Language,* published as No. XXVIII of the American Oriental Series, gives a grammatical sketch, text, and comparative vocabulary of this now practically extinct dialect. Two articles of his in the *JAOS,* "The Verb in Tigré" in the March number (pp. 1-26), and "Grammatical Sketches in Tigre," in the September number (pp. 164-203), since they both deal with the Mensa dialect, together provide us with a convenient grammar of this most important of the Tigré dialects. In the first volume of the new Journal *Word,* Leslau has a paper (pp. 59-82), discussing the important question of the "Cushitic Influences on the Semitic Languages of Ethiopia: a Problem of Substratum."

SLAVIC LANGUAGES AND LITERATURES

By Anthony J. Klancar
Editor and Writer

GENERAL

No doubt the next decade will see a period of intensified activity in the study of Slavic languages and literatures. New departments of Slavic studies are being organized in many colleges and universities with grants from such institutions as the Rockefeller Foundation. Although the emphasis now primarily is on Russian, many students of Slavic are finding less-crowded fields in Polish, Czechoslovak, and Yugoslav, while Bulgarian, which in the early days of

Slavic philology received so much study, deserves more attention than it is getting. On the whole, interest in all branches of Slavic research has increased.

The biggest event for Slavic studies in the United States was the decision of Prof. Samuel H. Cross and his colleagues to continue publishing the *London Slavonic and East European Review.* Professor Cross is one of America's best known Slavicists, and his editorship promises to bring the best talent in the field to the pages of his review. Another great event was the news that a Russian Institute would be organized at Columbia University, with Prof. Ernest J. Simmons, new head of the Department of Slavic Languages and Literatures at that university, as one of its leading directors.

Of general interest is Prof. Arthur P. Coleman's "The Teaching of Area and Language Courses in the Field of Slavic and East European Studies: A Directory of U. S. Collegiate Institutions" *(*ASEER,* 185-208). One hundred fifty institutions of collegiate level offer courses dealing with the East European area, 81 in Russian and 12 in Polish.

A milestone in the history of Slavic studies in America is W. Chapin Huntington's announcement of "The Russian Translation Project of the American Council of Learned Societies" (*RR,* 40-48). Huntington discusses the kinds of books that are being translated, sets forth the qualifications of competent translators, and tells how these are chosen. It is hoped that the scope of the project will be extended to include other Slavic languages.

BIBLIOGRAPHY

The best general bibliography of work done in Slavic by American scholars is the one published in the *PMLA* annual supplement (March). The most complete bibliography on Russian is Katherine and Nikander Strelsky's list in the *Russian Review.* (Spring issue). Others available in pamphlet form are N. N. Martianoff's *Books Available in English by Russians and on Russia Published in the United States,* and W. B. Walsh's *Readers' Guide to Russia.* For a list of 1944 work on Russia see Strelsky's "Books and Articles on Russia" (*RR,* 104-119). *The American Review on the Soviet Union* publishes, throughout the year, annotated lists of books and articles.

Specialized bibliographies of non-Russian Slavic literature are issued periodically in mimeographed form by the American Association of Teachers of Slavic and East European Languages. Two such compilations by Marion M. Coleman have already appeared: *Material Available in English on Polish Drama and Theatre* and the same for *Czech Drama and Theatre.* Joseph Grass's "Libraries in Old Poland" (*PR,* No. 2, 8-9-14) contains some interesting lists of ancient Polish books that date back to the 10th Century. Reviews of current books on Slavic may also be found in the *American Slavic and East European Review, Ukrainian Quarterly,* and *Books Abroad.*

SLAVIC—GENERAL

One of the last things that Prof. John D. Prince wrote was a little note, "Universal Language?" (*BA,* 29), in which he suggests Slovak as a *lingua franca* along with English, Spanish, or Italian. Old Church Slavonic and its influence on Czech Slovak nationalism have finally found authoritative exposition in Roman Jakobson's "Beginnings of National Self-Determination in Europe" (*RP,* 29-42). Professor Jakobson examines the literary work of S. S. Cyril and Methodius and finds "Church Slavonic culture a perpetual source of inspiration for Czechs and most Slavic peoples." In "Kollar's Vision of Slav Brotherhood" (*SM,* No. 8, 7-18, 40), George Waskovich discusses the ideas contained in Jan Kollar's famous poem *Slavy Dcera.*

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* Abbreviations used for periodicals are: *ARSU—American Review on the Soviet Union; ASEER—American Slavic and East European Review; At—Atlantic Monthly; BA—Books Abroad; NM—New Masses; PR—Polish Review; RP—Review of Politics; RR—Russian Review; Sci-Mo—Scientific Monthly; SM—Slavonic Monthly;* and *UQ—Ukrainian Quarterly.*

RUSSIAN LANGUAGE STUDIES

The popularity of Russian study increases each year as witnessed by M. H. Swadesh's *Talking Russian before You Know It* (Holt), E. Podbresky's *Short Cuts to Russian* (Padell), F. E. Sommer's *How to Read Russian* (Perkins), and D. Gurvitch and A. Herenroth's *Russians Say It This Way* (Intl. Univ. Press). T. E. Norton's "Poputchiki" (*At,* 131-2) gives an amusing picture of the difficulties a "fellow-traveler" has on the road to learning Russian. The best manual for self-teaching and even as a classroom text is N. N. Sergievsky's *Modern Russian* (Ungar).

To fulfill a need for increasing and testing a student's competent reading of Russian, which Professor Cross in his "Teaching College Russian" (*SR,* Vol. 27, No. 60, p. 48) defines as "the ability to read at sight any classic author . . . or any standard historical text . . ." A whole series of bilingual texts and readers were published in 1945. Among the former are Gogol's *Greatcoat* and Turgenev's *Mumu* (Transatlantic Arts), translated by Zlata Shoenberg and Jesse and John Domb. Uniform with these is Tolstoy's *Two Tales,* translated by P. T. Currall. Heath also began publication of a series of texts, beginning with Lermontov's *Tamn',* while Pitman brought out Tolstoy's *Family Happiness.*

RUSSIAN READERS

Several excellent Russian readers have appeared recently. Nikander Strelsky's *Russian Reader* (Longmans) includes material on general cultural subjects, the literature of classics, and articles on regions of the U. S. S. R. Rashelle Fastenberg's *Everybody's Russian Reader* (Lang. Stud. Press) highlights Russian literature from Pushkin to Simonov, based on texts used in primary and secondary schools of the U. S. S. R. There is also an excellent foreword by Prof. A. P. Coleman of Columbia University. Slanted toward students with a year or more of Russian, G. Z. Patrick's *Intermediate Russian Reader* (Pitman) covers about the same ground as the above. Nineteenth Century writers are featured in S. Konovalov's *Russian Prose Reader* (Intl. Univ. Press). Those wanting a complete topical phrase-book of value to travelers to U. S. S. R. will both enjoy and profit from N. E. Stepanoff's *Handbook of Modern Russian Conversation* (Dover). In *Advanced Conversation* (Heath), C. E. Kany and A. S. Kaun present a second booklet in a series of three Russian conversation manuals, designed to provide material for ten-minute conversations during each class period.

SCIENTIFIC RUSSIAN

Interest in scientific Russian keeps pace with Atomic Bomb research. J. Chaitkin's "Challenge of Scientific Russian" (*Sci. Mo.,* 301-6) deals with methods of teaching the Russian alphabet and gives some rules for pronunciation, while J. G. Tolpin in his authoritative "Teaching of Scientific Russian" (*ASEER,* 158-64) enumerates the basic requirements for successful teaching of scientific Russian: rudiments of grammar, accumulation of minimum vocabulary, coverage of fields of special interest, and practice in translation. So far we have only A. E. Chernukin's *English-Russian Technical Dictionary* (2nd ed. Intl. Univ. Press) to aid the student in his technical studies.

RUSSIAN LITERATURE

A great deal is being said today about Russian and Soviet literature. Tamara Motyleva discussing "Russian and World Literature" (*NM,* Nos. 9-10, 23-26, 23-25) points to Turgenev's and Dostoyevsky's influence on German, French, English, and American authors, and finds that "the true source of the greatness of Russian literature, however, was not in the backwardness of Old Russians but in the efforts to overcome this backwardness." Vera Alexandrova tells us in "The War in Soviet Literature" (*Common Sense,* 33-34) that Soviet writing itself is rooted in the great literature of the past decade. On the other hand "the Russian writer has this philosophy (necessary to a realistic novel) in dialectical materialism. He believes that men are motivated by forces and he also believes that men can shape these forces," Howard Fast points this out in his "Realism and the Soviet Novel" (*NM,* No. 10, pp. 15-16, 25-26). In a reminiscent mood Dorothy Brewster compares notes in "Appreciation of Alexei Tolstoy" (*NM,* No. 11, pp. 23-25) of her experiences in besieged Leningrad with similar scenes described in *Darkness and Dawn* and *Peter the Great.* The German in Tsarist days was a positive type in Russian literature, respected for his achievements in philosophy and science, but today he is a "bandit," a cold-blooded murderer. That is the opinion of Julia Sazonova, expressed in her study, "The German in Russian Literature" (*ASEER,* 51-79).

Perennial favorite of biographers, the older Tolstoy is again the subject of a keen analysis in Tikhon Polner's *Tolstoy and his Wife* (Norton). *The diaries of Tchaikovsky* (Norton) translated by Wladimir Lakond cover the years 1873 to 1891, a period of the Russian composer's greatest achievements. Slavic literature is rich in biography of general interest, but this form still begs for translators.

RUSSIAN THEATRE AND PLAYS

From Alexander Bakshy's "Latest Trends in the Soviet Theatre" (*RR,* 80-88) we learn that there is a tendency away from such political themes as the Five-Year Plan, the kulaks, or the achievements of the Red Army, and a return to the old favorites, such as Chekhov, Gorki, Gogol, Shakespeare, Goldoni, and Vega. Bakshy has also translated *Seven Plays* by M. Gorki (Yale Univ. Press), who more than any other writer gives complete expression to the "Rus" soul. In another volume, *The Plays of Anton Chekhov* (Caxton House), there are, among others, new versions of *The Sea Gull, Uncle Vanya, Three Sisters,* and *The Cherry Orchard.* Also worth mentioning is A. A. Shakhovskoi's "The New Sterne," a one-act play translated by Jeannette Eyre (*ASEER,* 80-92).

Howard Fast in the article mentioned above cites Konstantin Simonov as a type of Soviet realist and goes on to analyze the author's *Days and Nights* (Simon & Schuster) in that light. Simonov's best-selling novel is a non-political story of the personal fears, valor and idiosyncrasies that made up the united fight of the Red Army against the Nazis. Quite different is Zalman Shneour's *Song of the Dnieper* (Roy Publishers). In Joseph Leftwich's excellent translations we have the red-blooded story of a Jewish community in a little Russian town of the early 1900's. Another treat to readers of Russian literature is *The Short Novels of Dostoevski* (Dial). Including an introduction by Thomas Mann, this Collection consists of Dostoevski's six shorter novels long out of print, the best and most famous being *Notes from Underground, The Gambler,* and *The Eternal Husband.* Two anthologies also deserve mention here: B. G. Guerney's *Treasury of Russian Literature* (Blakiston) and J. Cournos' *Treasury of Russian Life and Humor* (Longmans).

In folk literature, there is Norbert Guterman's translation of *Russian Fairy Tales* (Pantheon Books). This is the first comprehensive edition of Russian fairy and folk tales. Based on Afanasiev's famous collection, it contains 180 stories and is richly illustrated.

UKRAINIAN

A Ukrainian scholar, Prof. Nicholas D. Czubatyj, should know "The Meaning of 'Russia' and 'Ukraine'" (*UQ,* 351-64). His article is an impartial analysis of the historical, geographical, political, and etymological meaning of the two words. Stephen Shumeyko's "Ukrainian Literary Tradition" (*UQ,* 365-75) is a good, concise survey of Ukrainian literature from the folk song to present writers. "Taras Shevchenko" (*UQ* 105-116) is the greatest poet of the Ukraine according to Prof. C. A. Manning, author of a recent book on *Ukrainian Literature*. A poet second only to Shevchenko is "Ivan Franko" (*UQ* 251-261), a biographical sketch by Stephen Shumeyko.

POLISH

The Polish poet, Adam Mickiewicz, is a perennial topic of research among American Slavicists. In a "Tribute to Adam Mickiewicz" (*Bulletin of the Polish Institute of Arts and Sciences in America,* Vol. 2, Nos. 3-4, 460-488), five scholars have written studies of Mickiewicz. For American readers, the most interesting are Tadeusz Mitana's "Professor G. R. Noyes and his Translations of Mickiewicz" and Leopold Wellisz's "Reverberations of Mickiewicz's Genius in America," which deals largely with the Polish poet's influence on Margaret Fuller and her circle.

The author of *Quo Vadis* saw a dark future for Polish-American immigrants, we learn from Sister M. Nobilis' "Sienkiewicz and the Poles in America" (*Polish-American Studies,* Vol. 2, Nos. 1-2, pp. 34-37). Besides the material found in the Polish novelist's *Report on the Poles in the United States* (1878), the writer also uses materials available in the Polish Roman Catholic Union Archives and Museum in Chicago. An interesting note for students of Polish-American relations may be found in S. L. Centkiewicz's "Polonica in English at the Library of the Polish R. C. Union in Chicago" (*PR,* No. 33, pp. 11, 13).

Paderewski's first opera *Manru,* presented for the first time in New York, is the subject of Marion M. Coleman's article "From Volhynia to the Metropolitan" (*PR,* June 28, pp. 4-5, 13); it traces in detail the steps by which Kraszewski's *Chata za wsie* became Paderewski's opera. Mrs. Coleman has also written on another Polish poet, "Malczewski's Marja: A Hundred and Twenty Years After" (*ASEER,* 111-126). *Marja,* a ballad-tale of murder and betrayal in high places, has as its background the poet's own life.

Polish literature is replete with evidences of how Poles feel toward their warlike German "friends." Zygmunt Wolski gives some good examples of this feeling in his "Age-old Scorn for Germans Reflected in Polish Literature and Proverbs" (*PR,* No. 23, 10-11). Here are some samples: "Germans are good only when they sleep," and "He who serves a German is paid by the devil." Alexander Janta, in his story of escape from a Nazi slave-labor camp, *Bound with Two Chains* (Roy Publishers), understood these proverbs in all their grim horror.

For several years now Kulb Polski, a club of Polish students at Columbia University, has been translating and publishing, under the guidance of Prof. Arthur P. Coleman and Marion M. Coleman, a series of Polish literary masterpieces. Their present volume, *Wayside Willow* is devoted to poetry. Another book, *The Stranger,* a novel by Marie Kuncewiczowa, completes the year's list of Polish literature in English translation.

CZECH AND YUGOSLAV

When F. C. Weiskopf's *Hundred Towers* (Fischer) was published it created a sensation among all lovers of literature. An anthology of writing between two wars, it contains stories, poems, and philosophical and biographical essays by 24 Czechoslovak authors. Two novelettes by one of Czechoslovakia's younger writers, Egon Hostovsky, have been received with similar acclaim by American critics. *Seven Times the Leading Man* (Fischer) deals with a writer in prewar Prague who plays the chief role in the lives of seven intellectuals whose spiritual weaknesses cause them to "run away or betray or submit." His other story, *The Hideout* (Random House) is an engineer's journal letters to his wife, the chronicle of his flight and two years spent in dark Paris cellars. Critics have proclaimed this story "a veritable little masterpiece." Translation of all three works (most of the anthology) was done by Fern Long who does an excellent job. In the Yugoslav field appeared, Ruth Sawyer's *This Is the Christmas* (Horn Book), a beautifully illustrated Serbian folk tale.

INDO-EUROPEAN LINGUISTICS

By GEORGE S. LANE
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THE LINGUISTIC INSTITUTE

In spite of war conditions and dearth of male students, the Institute has maintained an unbroken tradition, in 1942 at the University of North Carolina, in 1943 and 1944 at the University of Wisconsin, and in 1945 at the University of Michigan. Plans are being made to hold it again at Ann Arbor in 1946. These universities and the American Council of Learned Societies, which has so generously contributed aid in the form of fellowships, are to be congratulated on their devotion to higher learning in the Humanities during the stress of war with its undue emphasis upon the more "practical" sciences.

The session last summer at Ann Arbor ran from July 2 to Aug. 24 under the directorship of Prof. Charles C. Fries. Visiting instructors were Franklin Edgerton (Yale) in Sanskrit; Robert Hall (Brown) in Romance Languages; Otto Springer (Pennsylvania) in German; George Trager in Slavic Languages; and Carl Voegelin (Indiana) in General Linguistics and American Indian languages. Considerable emphasis was again laid upon the "intensive method" of language instruction and upon the descriptive technique in the analysis of unrecorded languages.

THE INTENSIVE LANGUAGE PROGRAM

The Program (cf. THE AMERICAN YEAR BOOK for 1943, p. 900f., and 1944, p. 928f.) has, of course, been in process of liquidation. However, its methods have been the occasion for continued reverberations in some of the journals devoted to language and language teaching. A recent discussion is that by J. Whatmough, "On Speaking with Tongues" (*Cl. Week*. 38. 123ff.) and the response by E. H. Sturtevant, "A Request for Further Information" (*ibid*. 172f.).

THE DESCRIPTIVE METHOD

In recent years there has been increasing controversy among linguists concerning the methods of descriptive linguistics. Most of these discussions have been reported in THE AMERICAN YEAR BOOK without particular emphasis upon the fundamentals at issue. The activities of the Intensive Language Program (cf. above) have served to augment this controversy and have given the two opposing sides clearer outline. A brief report to the general public is now not out of place.

In America the descriptive technique as practiced by the student of unwritten languages was outlined by Leonard Bloomfield in his book *Language* in 1933. Since then, the formalistic approach advocated there has been accepted and loudly proclaimed by many of Bloomfield's students and adherents. Other scholars have been just as vehement in their condemnation of the purely formalistic approach to language analysis (cf. the answer of Leo Spitzer, *Lang*. 20. 245ff.) to Bloomfield's discussion "Secondary and Tertiary Responses to Language" (*Lang*. 20. 45ff.; already reported in THE AMERICAN YEAR BOOK for 1944, p. 929), and the articles by Whatmough and Sturtevant cited above.

These discussions represent the complete cleavage of opinion on the rejection or admission of the mentalistic approach to language analysis. The school of Bloomfield rejects mentalism entirely from linguistics as a science, admitting only of a mechanistic, or better, formalistic, approach to language analysis. The opposite approach is defended by both Whatmough and Spitzer. More moderate viewpoints, or perhaps "middle of the road" approaches are advocated by Hans Sperber in "Behaviorism in Linguistics" (*Monatshefte f. deut. Unterricht* 37. 176ff.) and by Hans Kurath in his review of Bloch and Trager, "Outline of Linguistic Analysis" (*AJPh.* 66. 206ff.). Contributions to the descriptive method by means of formalistic approach are those by Z. S. Harris, "Simultaneous Components in Phonology" (*Lang.* 20. 181ff.); B. L. Whorf, "Grammatical Categories" (*ibid.* 211 ff.); and L. Bloomfield, "On Describing Inflection" (*Monatshefte f. deut. Unterricht* 37. 8ff.). In an article entitled "Change of Emphasis in Linguistics with Particular Reference to Paul and Bloomfield" (*Studies in Philology* 42. 465ff.), G. S. Lane has attempted to follow briefly the rise of (formalistic) descriptive linguistics as a science in the past few decades. Descriptive linguistics as a science is still in its infancy and, no doubt, there will be much chaff to winnow from the grain in the next few years, but grain there will certainly be.

HITTITE AND TOCHARIAN

The sharp controversy over the validity of the Indo-Hittite Laryngeal Hypothesis (cf. THE AMERICAN YEAR BOOK for 1941, p. 908, and 1942, p. 902) continues in G. Bonfante's "Retort" (*Cl. Ph.* 40. 116ff.) to E. H. Sturtevant's answer to his review of the latter's *Indo-Hittite Laryngeals* (THE AMERICAN YEAR BOOK 1943, p. 902). Bonfante's and Gelb's attempt to determine "The Position of Hieroglyphic Hittite among the Indo-European Languages" (*JAOS* 64. 169-190), in which they try to show that we are dealing with a "satem" rather than a "centum" language, is subjected to severe criticism, both as regards interpretation of the data involved and methodology, in the articles by A. Goetze "Hittite and the Indo-European Languages" (*ibid.* 65. 51ff.) and by W. M. Austin "The Scientific Method and Historical Linguistics" (*ibid.* 65. 63f.). In the former study, Goetze declares himself now for Sturtevant's "Indo-Hittite Hypothesis." One of the latter scholar's many contributions in the interpretation of Indo-European phenomena in the light of Hittite evidence is again found in "Hittite Verbal Nouns in -tar and the Latin Gerund" (*Lang.* 20. 206ff.).

For Tocharian there are two contributions to report: O. Maenchen-Helfen "The Yüeh-Chih Problem Re-examined" (*JAOS* 65. 71ff.), which reviews the ethnological problems involved in the identification of the Tocharians, and G. S. Lane "The Tocharian Palatalizarion (I)" (*Lang.* 21. 18ff.) which attempts to establish definitely the facts of the so-called palatalization and the relationship between non-palatalized and palatalized consonants. New discoveries are meager in both articles.

INDIC AND IRANIAN

P. Tedesco continues his exhaustive lexical studies with two articles: "Sanskrit *munda-* 'Shaven'" (*JAOS* 65. 82ff.), and "The Supposed Rigvedic Present *marate*" (*Lang.* 20. 212ff.). C. A. Ferguson applies the descriptive methodology to a modern Indic dialect in "A Chart of the Bengali Verb" (*JAOS* 65. 54ff.). T. A. Sebeoc reviews an old problem for new significance in "Finno-Ugric and the Languages of India" (*JAOS* 65. 59ff.). Evidence is assembled for the contact of Finno-Ugric with both Indo-European and non-Indo-European languages of India. R. G. Kent continues his Iranian studies in "The Name of Hystapes" (*Lang.* 21. 55ff.). The Persian proper name *Vištaspa-* (Grk. *Hystapes*) is a compound of the participle of *vaes-* 'come in ready for action' and *aspa-* 'horse'.

GREEK AND LATIN

G. M. Bolling has culminated his long and fruitful Homeric studies in "The Athetized Lines of the Iliad" (special publications of the Linguistic Society, Baltimore, Linguistic Society of America, 1944). (Review by J. A. Scott, *Cl. Ph.* 38. 74f.) Two other studies in Homer by Bolling are "The Etymology of ἴχωρ" (*Lang.* 21. 49ff.) and "Movable Nu at the End of Homeric Verses" (*Cl. Ph.* 40. 181). D'Arcy W. Thompson under the title "The Greek for a Dormouse" (*Cl. Ph.* 40. 185ff.) produced a brief study of greater interest to the general reader than the name would imply. E. L. Bassett in "The Genitive Absolute in Latin" (*Cl. Ph.* 40. 108ff.) attempts to show that this rare construction is not a Grecism but is of native origin.

GERMANIC AND CELTIC

Two general Germanic contributions are those of E. H. Sehrt, "The Origin of the Germanic Weak Preterite" (*Lang.* 20. 238ff.), which reviews the theory of its origin from the second person singular of the IE root aorist; and R. A. Fowkes "Germanic Etymologies" (*JEGPh.* 44. 208f.) with comments on the derivatives of the bases *sem-* and *jeug-*.

In Gothic, A. M. Sturtevant has continued his gleanings with "Notes on the Text of the Gothic Bible" (*JEGPh.* 44. 62ff.), "Notes on Gothic Morphology" (*PMLA* 60. 1ff.), and "Gothic Syntactical Notes" (*MLN* 60. 104ff.). Fritz Mezger presents a brief study in word formation in "Gothic *gabaurjopus*" (*Lang.* 21. 97f.). For Norse, consult F. T. Wood "Two Eddic Words" (*Scand. Studies and Notes* 18. 269f.).

Several studies in various phases of English linguistics have appeared: R. S. Wells "Pitch Phonemes in English" (*Lang.* 21. 27ff.); Helge Kökeritz "The Reduction of Initial *kn* and *gn* in English" (*ibid.* p. 77ff.); R. J. Menner "Multiple Meaning and Change of Meaning in English" (*ibid.* p. 59ff.), and S. H. Kuhn "E and Æ in Farman's Mercian Glosses" (*PMLA* 60. 631ff.).

For Celtic, should be noted L. H. Gray "Mutation in Gaulish" (*Lang.* 20. 223ff.); R. A. Fowkes "Some Welsh Notes" (*ibid.* 21. 96f.); and Myles Dillon "Linguistic Borrowing and Historical Evidence" (*ibid.* p. 12ff.). Dillon's study reviews the matter of classification of linguistic borrowings as "intimate" and "cultural" (Bloomfield) in connection with O'Rahilly's assumption of a pre-Goidelic substratum of Brittonic in Ireland.

PERIODICAL PUBLICATIONS

American Bookman
15 E. 40th Street, New York City.
American Historical Review
8 N. 6th Street, Richmond, Va.
American Literature
Duke University Press, Durham, N. C.
American Scholar
12 E. 44th Street, New York City.
American Speech
Columbia University Press, New York City.
Atlantic Monthly
8 Arlington Street, Boston.
Books Abroad
University of Oklahoma Press, Norrow, Okla.
Catholic Historical Review
Catholic University Press, Washington, D. C.
Classical Journal
Washington University, St. Louis, Mo.
Classical Philology
5750 Ellis Ave., Chicago.
Classical Weekly
4200 Fifth Ave., Pittsburgh, Pa.
Commonweal, The
386 Fourth Ave., New York City.
Editor and Publisher
1475 Broadway, New York City.
English Literary History
Johns Hopkins Press, Baltimore, Md.
Germanic Review
Columbia University Press, New York City.
Harper's Magazine
49 East 33rd Street, New York City.
Harvard Graduates Magazine
Harvard University, Cambridge, Mass.
Harvard Studies in Classical Philology
Harvard University, Cambridge, Mass.
Journal of American Oriental Society
329 Sterling Memorial Library, New Haven, Conn.

Journal of English and German Philology
University of Illinois, Urbana, Ill.
Journal of the History of Ideas
New York City College, Convent Ave., & 139th Street, New York City.
Journal of Modern History
5750 Ellis Ave., Chicago.
Journal of Negro History
1538 9th Street N.W., Washington, D. C.
Journal of Southern History
Louisiana State University, Baton Rouge, La.
Kenyon Review
Kenyon College, Gamber, O.
Language
Mount Royal & Guilford Aves., Baltimore, Md.
Library Journal
62 W. 45th Street, New York City.
Library Quarterly
5750 Ellis Ave., Chicago.
Mid-America—An Historical Review
Loyola University, Chicago.
Mississippi Valley Historical Review
Lincoln, Neb.
Modern Language Quarterly
Johns Hopkins Press, Baltimore, Md.
Modern Philology
5750 Ellis Ave., Chicago.
Nation, The
55 Fifth Ave., New York City.
New England Quarterly
200 Stevens Hall, Orono, Maine.
New Republic, The
40 East 49th Street, New York City.
Pacific Historical Review
University of California Press, Berkeley, Calif.
Philological Quarterly
State University of Iowa, Iowa City, Ia.
P M L A
Modern Language Association of America, 100 Washington Square E., New York City.
Poet Lore
30 Winchester Street, Boston.
Poetry
232 East Erie Street, Chicago.
Publishers Weekly
62 West 45th Street, New York City.
Romanic Review
Columbia University Press, New York City.
Saturday Review of Literature
25 West 45th Street, New York City.
Sewanee Review
University of the South, Sewanee, Tenn.
South Atlantic Quarterly
Duke University Press, Durham, N. C.
Southwestern Historical Quarterly
Texas State Historical Association, Austin, Tex.
Speculum
Mediaeval Academy of America, 1430 Massachusetts Ave., Cambridge, Mass.
Studies in Philology
University of North Carolina Press, Chapel Hill, N. C.
Travel
116 East 16th Street, New York City.
Virginia Quarterly Review
University of Virginia, Charlottesville, Va.
William & Mary Quarterly
College of William & Mary, Williamsburg, Va.
Yale Literary Magazine
Yale Station, New Haven, Conn.
Yale Review
New Haven, Conn.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

AMERICAN ACADEMY OF ARTS AND LETTERS, 633 W. 155th St., New York City.

AMERICAN ACADEMY OF ARTS AND SCIENCES, 28 Newbury St., Boston.

AMERICAN BOOKSELLERS ASSN., 35 E. 20th St., New York City.

American Council of Learned Societies, 1219 16th St., N.W., Washington, D. C.

American Institute of Graphic Arts, 115 East 40th Street, New York City.

American Library Assn., 520 N. Michigan Ave., Chicago, Ill.

American Newspaper Guild, 63 Park Row, New York City.

American Newspaper Publishers' Assn., 370 Lexington Ave., New York City.

American Philosophical Assn., Wesleyan University, Middletown, Conn.

American Philosophical Society, 104 S. Fifth St., Philadelphia, Pa.

American Society of Composers, Authors and Publishers, 30 Rockefeller Plaza, New York City.

Associated Press, The, 50 Rockefeller Plaza, New York City.

Association of National Advertisers, 285 Madison Ave., New York City.

Bibliographical Society of America, 100 Washington Square, New York City.

Book Publishers Bureau, 347 Fifth Ave., New York City.

Foreign Publicity Service, 77 Bowery, New York City.

National Committee of the United States of America on International and Intellectual Cooperation, 405 West 117th Street, New York City.

National Editorial Assn., 188 W. Randolph St., Chicago, Ill.

National Institute of Arts and Letters, 633 W. 155th St., New York City.

National Publishers' Assn., 232 Madison Ave., New York City.

P.E.N.—American Center, 16 East 96th Street, New York City.

Society of American Archivists, Menasha, Wis.

United Press Assn., 220 E. 42nd St., New York City.

U. S. Publishers Assn., Inc., 386 Fourth Ave., New York City.

AMERICAN LITERATURE

American Dialect Society, Woman's College of the University of North Carolina, Greensboro, N. C.

Authors Guild, 6 E. 39th St., New York City.

Authors League of America, Inc., 6 E. 39th St., New York City.

Catholic Writers Guild of America, 128 W. 71st St., New York City.

National Assn. for American Speech, 1150 Fifth Ave., New York.

Simplified Spelling Board, Lake Placid Club, Essex County, N. Y.

Walt Whitman Society of America, 377 Anchor Ave., Oceanside, N. Y.

LANGUAGE AND LITERATURE

American Classical League, Vanderbilt University, Nashville, Tenn.

American Oriental Society, 20 Hopkins Place, Baltimore, Md.

American Philological Assn., Swarthmore College, Swarthmore, Pa.

American Speech Correction Association, University of Minnesota, Minneapolis, Minn.

Classical Association of the Middle West and South, Washington University, St. Louis 5, Mo.

Dickens American Fellowship, 570 Lexington Ave., New York City.

International Arts and Letters, 457 West 57th Street, New York City.

Linguistic Society of America, 2019 Lanier Drive, Silver Spring, Md.

Modern Language Assn. of America, 100 Washington Square E., New York City.

Shakespeare Association of America, Inc., 601 West 113 Street, New York City.

HISTORY

American Antiquarian Society, Worcester, Mass.

American Association for State and Local History, Box 6101, Washington, D. C.

American Catholic Historical Association, 1312 Massachusetts Avenue N.W., Washington, D. C.

American Historical Association, Library of Congress Annex Study Room 274, Washington, D. C.

American Society of Church History, 5757 University Avenue, Chicago, Ill.

Hispanic Society of America, The, 155 Street West of Broadway, New York City.

Mediaeval Academy of America, 1430 Massachusetts Avenue, Cambridge, Mass.

Mississippi Valley Historical Association, University of Minnesota, Minneapolis, Minn.

National Historical Society, 175 Fifth Avenue, New York City.

Southern Historical Association, Louisiana State University, University, La.

DIVISION XXVI

THE ARTS

PAINTING

By Florence S. Berryman
The American Federation of Arts

GENERAL

The year in which history's worst war ended placed Americans in the role of recovering and safeguarding incalculable treasures of European painting and other works of art, and restoring some of them to their rightful owners.

In the United States, the last of American museums' art was brought out of hiding. Exhibitions of combat art by various branches of the armed forces probably reached a peak. Suggestions were advanced for a war museum to be built in Washington, to house these thousands of documentary paintings and drawings.

Industry extended its patronage of contemporary art. Public collections' acquisitions by gift and purchase increased. Auction prices for paintings rose to new heights, in keeping with the inflationary trends in other fields, and in some respects were better justified.

RESCUE AND PROTECTION OF EUROPE'S ART

General Patton's Third Army uncovered a colossal treasure trove in Germany. Paintings by the greatest masters—Raphael, Durer, Rembrandt, and many others—were found hidden in a salt mine near the village of Merkers in the Thuringian forest. The cache comprised about 1,000 cases of paintings and sculptures, 150 rare tapestries, and 1,000 engravings. Other collections were found at Berchtesgaden.

After V-E Day, the world learned of the Nazis' efficient organization for the care and redistribution of Europe's plundered art heritage. A staff of 250 German workers was employed to catalogue and restore works of art hidden in the Neuschwanstein Castle, erected by mad King Ludwig of Bavaria in 1869. They totaled 21,000 works.

Art treasures from nearly every country in Europe, their value estimated at approximately $2,000,000,000, were found in southern Bavaria and Austria, in seven hide-outs—castle vaults, mountain tunnels, and salt mines. A large part of it had been taken to Germany by Alfred Rosenberg's Art Commission, destined for the Adolf Hitler Museum at Linz, or a Hermann Goering Museum. Many masterpieces had been taken from the Rothschild, Alphonse Kann, and Stern collections in Paris, but German families were also looted, among them the Wittelsbachs, royal family of Bavaria. More than 200 collections were represented in the hoard, including the Warsaw Library (illuminated manuscripts) and the Jeu de Paume Museum in Paris (many paintings). Lieut. James Rorimer of the Metropolitan Museum of Art, New York City, did outstanding work in connection with these fabulous art troves.

HERMANN GOERING COLLECTION

The United States' 101st Airborne Division took charge of the Hermann Goering art collection of paintings, sculpture, and tapestries of an estimated value of more than $100,000,000. Goering had assembled it during more than a decade, partly by purchase with the proceeds of confiscated iron and steel plants, and partly by gift. Too extensive to be shown in its entirety except in a museum, most of the collection was originally kept at Karin Hall, his large home near Berlin, named after his first wife; the remainder was stored in vaults in Berlin. In April 1945, when he thought the Russians would take the German capital, Goering shipped his collection to Berchtesgaden. All the paintings were stored in a salt mine, but the Americans (3rd Infantry Division) arrived before the sculpture was out of sight; much of it had been badly damaged by the hurried and unprotected journey.

The 101st Airborne, arriving on the heels of the 3rd Infantry, removed the collection within three days to Unterstein and placed it on view to the public until mid-July. After it was catalogued by American experts, it was shipped to Munich warehouses to await disposition by the Reparations Committee. Some of it will undoubtedly be turned over to the U. S. Government as war reparations, according to Lieut. Ernest H. Allen of the 101st Airborne, one of the cataloguers, who wrote in *The Art Digest.* Where original ownership can be determined, items will be returned.

Paintings composed the largest part of Goering's collection, and included every school from German and Italian primitives, to contemporary German. Goering's favorite period appeared to be the 15th and 16th centuries. Two full-length portraits by Bellini headed a fine group of most of Italy's best masters. The German collection, too, was outstanding, with 47 Cranachs, and approached the Munich museum collections in quality. Large Flemish and Dutch groups included every famous name of the period. There was a small French collection, but the English and Spanish schools were represented with one painting each.

The collection of approximately 200 sculptures was especially strong in 15th century south German statues. About 50 tapestries ranged from the 12th to the 17th centuries, in period.

BELGIAN TREASURE

The American Army, by order of General Eisenhower, delivered Van Eyck's "Adoration of the Lamb" to Belgium to be replaced in the Church of St. Bavon in Ghent, for which it was painted five centuries ago. At an official ceremony at the Palace in Brussels, in the autumn, the American Ambassador turned over to the Prince Regent, Belgium's greatest art treasure, and one of the world's greatest.

GERMAN ART IN THE UNITED STATES

More than 200 paintings by old masters, valued at $80,000,000, were sent from German art museums damaged during the war, to the National Gallery of Art, Washington, D. C., for safe-keeping. They will be returned when conditions permit.

EXHIBITIONS OF WAR ART

Paintings and drawings connected with the war were exhibited throughout the United States, in both group and one-man shows, too numerous to list. Outstanding were the Abbott Collections of Army and Navy Medical Art; these supplied exhibitions which opened simultaneously on May 3. The Army collection, 250 paintings, opened at the Corcoran Gallery of Art, Washington, D. C. as the first place on a tour of large cities. One hundred paintings of Navy Medical Art opened at the Art Alliance, Philadelphia. Abbott Laboratories began early in the war (see THE AMERICAN YEAR BOOK, 1944) to commission American artists to make documentary paintings; the artists shared the hardships of the fighting men they depicted.

Kerr Eby, one of Abbott Laboratories' outstanding artist correspondents, who accompanied the Marines to Tarawa and Bougainville, showed 30 large paintings and drawings at Associated American Artists, New York, in May. They had captured what

General Smith, commander of the Tarawa assault described as "the dramatic intensity and spirit of men at war."

"The War Against Japan," an exhibition of 100 paintings and drawings by 17 combat and correspondent artists, sponsored by the Treasury Department to give impetus to the sale of war bonds, opened at the National Gallery, Washington, D. C. during the summer, and went from there to the Metropolitan Museum of Art, New York, and subsequently to the Baltimore Museum of Art. It was notable for its esthetic quality, as well as being a vivid record.

A series of paintings of Paris after its liberation, by Floyd and Gladys Rockmore Davis, was shown at Time & Life Information Center, New York City, in August. The artists had been sent to Paris in the autumn of 1944, on commission from *Life Magazine,* which reproduced the works in its July 16 issue.

INDUSTRY'S PATRONAGE OF ART

The Encyclopaedia Britannica's Collection of Contemporary American Painting, begun in 1943 and announced in 1944, made its debut in an exhibition at the Art Institute of Chicago in April, 1945. Subsequently it was shown in New York, Boston, Washington, Dayton, and Pittsburgh on what will probably be a five-year tour of the United States. Constantly growing and changing, the collection totaled 135 paintings by autumn, and a number of canvases originally acquired had been exchanged for better examples by the same artists. Active patronage of living American art by so-long-established and important a business firm as Encyclopaedia Britannica, was acclaimed everywhere as a factor of outstanding importance. The paintings represent a cross-section of American art, beginning with "the Eight of 1908," purchases having been made as a result of the collective opinions of about 50 artists, museum directors, and art dealers, obtained by means of a questionnaire devised by E. H. Powell, Britannica president.

The Pepsi-Cola Company, in accordance with its announcement in 1944, held its second annual "Portrait of America" competition for oil and tempera paintings of present-day America and American life, offering 20 prizes, totaling $15,250. A dual jury, conservative and modern, selected 150 exhibits from 3,270 entrants. A third jury awarded the prizes: 1st, $2,500, to Paul Burlin for "Soda Jerker"; 2nd, $2,000, to Max Weber for "Colonial Table"; 3rd, $1,500, to Gregorio Prestopino for "Morning Conference"; 4th, $1,000, to Mark Tobey for "Sale"; 5th, $750, to Zoltan Sepeshy for "Fisherman's Morning." Fifteen awards of $500 each were also made; and 12 of the paintings will be reproduced on Pepsi-Cola's calendar for 1946. The second "Portrait of America" exhibition was installed in November, in Rockefeller Center's Mezzanine Gallery. Critical opinion generally found it "more pictorial, more 'academic,' . . . more homogeneous" than that of 1944.

International Business Machines' president, Thomas J. Watson, who has acquired hundreds of paintings, sculptures, prints, and other works by living artists in recent years, was responsible for the "Arts Fiesta of the Americas" exhibition which opened at Grand Central Galleries, New York, in April. More than 300 artists were represented, from Canada and Latin American republics as well as the United States. Other Watson collections in recent years have been exhibited in 176 cities in the United States and Latin America.

The Upjohn Company of Kalamazoo, Mich., manufacturers of pharmaceuticals, began a collection of contemporary American paintings, which received widespread critical acclaim because works were selected by searches through galleries, studios, and national exhibitions. Paintings were chosen to illustrate messages in an advertising campaign "to explain recent developments in the field of medicine," and were reproduced in color in many popular magazines during 1945. A book entitled *Your Doctor Speaks,* incorporating the first 10 paintings and messages, was published and mailed to every registered physician in the United States (more than 100,000). Magazine insertions are scheduled through 1946. Fourteen artists were represented up to Nov. 1, and the original paintings were exhibited in October at the Grand Rapids Gallery as the first place on a long circuit which will take the collection around the United States. As new paintings are purchased, they will be reproduced for future magazine appearance, and will then be shipped to wherever the traveling exhibition is at the time.

The Bulova School of Watchmaking, Woodside, L. I., which was opened during the summer to train disabled veterans for positions in this industry, installed a series of mural paintings by Gerald Foster, assisted by John Poehler, which illustrate five methods of telling time in past ages.

Metro-Goldwyn-Mayer had commissioned Ivan Le Lorraine Albright to paint "The Picture of Dorian Gray" for its motion picture of that name, which was released during the year. Although the total cost was not divulged, it was surmised to be the costliest picture ever painted in America. The artist and his twin brother Zsissly as collaborator, worked for a year with all expenses paid, and in addition, received a fee for the painting.

The Connecticut Mutual Life Insurance Company of Hartford commemorated its 100th anniversary by issuing a jubilee calendar of the American Scene as depicted by American artists who lived during the century. Since 1935, this company has issued annually a calendar carrying reproductions of works by contemporary American artists. The American Artists Group of New York was commissioned to prepare the anniversary calendar.

MUSEUM ACQUISITIONS BY GIFT, PURCHASE OR LOAN—FRICK COLLECTION

Permanent collections throughout the country were augmented during the year. The Frick Collection, New York City, returned to public view after three years, with its group of more than 70 masterpieces rehung with six new acquisitions, five of which were purchased from the Morgan collection. They are Rembrandt's portrait of Nicolaes Ruts, dated 1631; Goya's portrait of the Ninth Duke of Osuna; Reynolds' portrait of Gen. John Burgoyne, painted in 1776; "The Wool Winder" by Greuze; Constable's "White Horse, a Scene on the River Stour"; and "Still Life" by Chardin.

STUART-LINTON COLLECTION

The Washington County Museum of Fine Arts, Hagerstown, Maryland, placed on view in October, nine paintings from the famous Stuart-Linton Collection, lent for an indefinite period by the grandson of the original owner of the collection, Charles Alfred George Stuart-Linton, who received more than 40 paintings and sculptures from Prince Adolphus Frederick, First Duke of Cambridge, brother of George IV of Great Britain. The Hagerstown group has an outstanding Greuze, "Danae" which was a favorite possession of Joseph Bonaparte. Van Dyck and Rubens are among the masters represented.

OLD MASTERS AND 18th CENTURY

Works by Old Masters of various schools included two important paintings of the Italian Renaissance: "The Mystical Marriage of St. Catherine," by Veronese, given to the Detroit Institute of Art by Mr. and Mrs. Walter O. Briggs, and never before publicly shown, although in private American collections since 1872; and a Florentine Quattrocento Annunciation, dated about 1435, attributed to Bicci di Lorenzo, acquired by the Boston Museum of Fine Arts from a Czechoslovakian collection. Masterpieces of the Flemish Renaissance included a portrait of a young priest, attributed to Hugo van der Goes, acquired by the Museum of Art of the Rhode Island School of Design, one of only three Goes portraits in this country; and "Adoration of the Magi" by Joos van der Beke van Cleve, painted about 1525, given by Mr. and Mrs. Edgar Whitcomb to the Detroit Institute of Art. The "Adoration" is not only a fine work, but is the key to the identity of this long-lost artist, whose name became confused with that of his son. Five famous examples of 18th century English painting were acquired by the Albright Art Gallery, Buffalo, from the Morgan collection, through gifts of the Knox family to a fund established in 1915 by Seymour Knox, Sr. The painting by Hogarth, is the only example of his "moral" work in the United States. Lawrence's "Miss Rosamond Croker" was considered by his contemporaries one of his two greatest portraits. The other three are by Reynolds, Gainsborough, and Romney.

19TH CENTURY FRENCH ACQUISITIONS

French paintings of the 19th century included David's "La Citoyenne Crouzet," painted about 1795, purchased by the Cleveland Museum of Art; "Les Courses d'Auteuil" by Manet, acquired by the Cincinnati Art Museum; two by Renoir, the important "Young Shepherd" painted in his old age, acquired by the Museum of the Rhode Island School of Design, and his famous "Seated Nude," of his late period, acquired by the Art Institute of Chicago; and "Le Port de Gravelines" by Georges Seurat, given to the John Herron Art Institute, Indianapolis, probably the last important work by this scientist-artist which will come on the market.

AMERICAN PAINTINGS

American painting fared well during the year. In addition to the extensive purchases by business firms already noted, many works were acquired by museums and art galleries in accordance with regular programs. The Dallas (Texas) Museum joined this group by instituting a long-range program for enlarging its collection along four lines: regional, national, and international contemporary painting, and earlier work. From its exhibition of contemporary American painting held early in the year, the Museum purchased five paintings, and received a sixth by gift.

Iowa State University also inaugurated an annual exhibition of contemporary painting, in July, with the double purpose of offering its region a cross-section of progressive painting, and of developing a good teaching collection. The University purchased five paintings from 127 on view, and others were sold to private collectors.

The New Britain (Conn.) Institute's Art Museum, only four years old, has assembled a creditable collection of American paintings, to which 21 were added by purchase during 1944-45.

The University of Georgia received, as a gift from Alfred H. Holbrook, a collection of 100 paintings by as many American artists of the past century, as a memorial to his wife. The Eva Underwood Holbrook Memorial Collection will form the nucleus of a fine arts museum eventually to be established on the university campus.

EXHIBITION OF RHODE ISLAND SCHOOL OF DESIGN

Of many well-organized and excellent exhibitions held during the year, a large number benefited Government bond sales or charitable organizations. The Rhode Island School of Design Museum of Art opened in January an exhibition entitled "Old and New England" as an "Art for Bonds" show. It was critically acclaimed as the most ambitious exhibition undertaken anywhere in several years. Director Gordon Washburn worked seven months assembling 103 paintings from many private and museum collections. Among them were 38 canvases from Britain's "golden age," nine portraits by Gilbert Stuart, including that of George Washington from the State House in Providence, removed for the first time since 1801, and accompanied by an armed guard; 11 paintings by John Singleton Copley, and many other masters, which constituted an opportunity to compare the painting of England and New England between 1670 and 1835. At the opening ceremonies, Jan. 19, 1945, the Rhode Island War Finance Committee announced the show was responsible for the sale of $1,333,650 in war bonds, and a few days later, for another $250,000.

ART INSTITUTE OF CHICAGO

The Art Institute of Chicago assembled and documented a great exhibition of "The Hudson River School and the Early American Landscape Tradition," its largest undertaking since the Century of Progress Exhibitions there in 1933 and '34. The collection of 164 pictures, mostly oil paintings, representing 50 artists, was shown in March, went to the Whitney Museum, New York City, for April and May.

BOSTON

The Boston Museum of Fine Arts showed "1000 Years of Landscape: East and West" from its own collection augmented by loans. It included Chinese scroll paintings dating from the 10th century, Japanese, Indian, and Persian work from the 15th, and western paintings and prints from the 15th century through Postimpressionism.

NEW YORK

The Whitney Museum, New York City, and the Walker Art Center, Minneapolis, collaborated on an exhibition, "American Watercolor and Winslow Homer," which was shown in the spring in those cities and Detroit. It ranged from early 19th century lady amateurs through Homer and his great contemporaries, down to the present day.

The Centenary of the Naval Academy's founding at Annapolis was commemorated by exhibitions in two New York City galleries. The Knoedler Galleries held a comprehensive exhibition of paintings, many from the Academy's permanent collection, which celebrated the growth and exploits of the Navy from Revolutionary times through the Second World War. The Harry Shaw Newman Gallery had an exhibition of 15 historical Naval paintings, nine of which were sold in the first few days.

Other old master exhibitions included "Dutch Masters of the 17th Century," at the Knoedler Galleries, New York City, in February, comprising portraits, landscapes, marines, still life, and conversation pieces; and the Flint, Michigan Institute of Arts' "Victory" show in September and October, of 14 paintings of fine quality by old masters, loans from two New York firms, Duveen and Wildenstein.

The Museum of Modern Art for the first time in the 15 years of its life, displayed its permanent collection in part. From its more than 900 works, 300 paintings and 75 sculptures were installed on two floors. Comprising folk art and modern primitives, European masters, School of Paris, American Painting in the International Tradition and related categories, it was hailed as surprisingly good.

The National Association of Portrait Painters held its first exhibition in 20 years: "Portraits of Americans by Americans," at the New York Historical Society in April, comprising 97 paintings and sculpture from public and private collections. Proceeds from the sale of an illustrated catalogue went to the Welfare Fund of United States Naval Hospital at Sea Gate, New York Harbor.

Portraits, Inc. held at the end of the year, an exhibition of "Portraits of American Women," for the benefit of the Home for Incurables. It included work by many famous painters of women prominent during the century and a half from James Peale to Salvador Dali.

The Whitney Museum held in March and April an exhibition of paintings by noted European artists who have come to America since 1938, from 12 nations: Masson, Leger, Ernst, Chagall, Dali, Hayter, Helion, Tchelitchew, Duchamp, Tanguy, Kisling, Mondrian, Ozenfant and many others, talented refugees who have inevitably influenced contemporary American painting.

Arts and Antiques Show, held at the 17th Regiment Armory in New York the last week of September, had two large exhibitions of art: one comprising 10 paintings and two sculptures selected by each of 13 New York art critics; the other assembled by art dealers. Sponsored by Seymour Halpern Associates, the exposition occupied 40,000 square feet of floor space, attracted approximately 76,000 persons; purchases amounted to more than $1,500,000 worth of furniture and paintings.

NEGRO ART

The Albany Institute of History and Art aided by the Carnegie Corporation of New York and the Phelps Stokes Fund, assembled "The Negro Artist Comes of Age," comprising 76 works by 43 contemporary American Negro painters and sculptors, the largest exhibition of the kind yet seen. After its close in February, The American Federation of Arts took it over for a national circuit.

ANNUAL AND BIENNIAL EXHIBITS

The Corcoran Gallery of Art held its 19th Biennial Exhibition of Contemporary American Oil Paintings in March, which, like the 1943 Biennial, was an invitation affair for the same reason — transportation difficulties. Reginald Marsh won the first prize of $2,000 and the Corcoran Gold Medal for "Strip Tease in New Jersey"; Zsissly, second prize of $1,500 and Corcoran Silver Medal for "Deer Isle, Maine"; Isabel Bishop, third prize of $1,000 and Corcoran Bronze Medal for "Two Girls Outdoors"; Jean Liberte, fourth prize of $500 and Honorable Mention certificate for "Twin Lights, Rockport."

The Pennsylvania Academy of Fine Arts 140th annual exhibition comprised 305 exhibits. It was modern in trend. Abraham Rattner's semi-abstract "Kiosk" received the Temple Medal and Stuart Davis' "Ultra Marine" fetched the J. Henry Scheidt Memorial prize. There were seven other regular awards for painting and sculpture as well as purchase funds.

The Cleveland Museum of Art held its 27th annual "May Show" devoted to work of local artists, for support of whom the city is famous. Figures for the earlier annual show also totaled 7,727 objects sold for the sum of $229,064.05. The 1945 annual comprised 1,097 items by 324 Cleveland artists and craftsmen; 74 prizes and honorable mentions were awarded in 20 different categories.

The Audubon Artists Group of New York, a fast-growing organization established in 1940 on the site of the J. J. Audubon homestead, Washington Heights, held its fourth annual at the National Academy in September. Nearly 600 exhibits in four different media ranged from ultra-conservative to radical. Prizes totaling $2,500 were awarded, as well as several gold medals of honor.

Carnegie Institute, Pittsburgh, held its Founders Day exhibition Oct. 11 to Dec. 9. John O'Connor, Jr., acting director, invited the 350 works comprising "Painting in the United States 1945," which was considered excellent in representing all trends in American painting today. Philip Guston won the Carnegie first prize of $1,000.

The Art Institute of Chicago's 56th annual of American Paintings opened in October, was markedly naturalistic in character, and also had a surprisingly large number of religious paintings.

ONE-MAN SHOWS

Wassily Kandinsky, abstract and non-objective painter, who died in Paris December 1944, was commemorated by The Museum of Non-Objective Art, New York, which has the largest collection of his works in America, with a spring exhibition of 227 paintings, including loans.

Georges Rouault had a large, impressive exhibition of paintings, lithographs, and etchings at the Museum of Modern Art, New York, April through June.

Claude Monet was commemorated in a loan exhibition of 80 of his paintings at the Wildenstein Galleries, New York, the largest display of his work ever held in the United States. Proceeds from an admission fee went for the benefit of children of Giverny, where Monet lived and worked for many years. Exhibitions of work by other Impressionists were held at the same time (April and May), in other dealers' galleries: oil paintings by Renoir and pastels by Degas at Durand-Ruel; outstanding examples by six Impressionists — Manet, Monet, Renoir, Degas, Pissarro and Sisley — at Carroll Carstairs, enabling visitors to review the whole movement at these galleries.

Pissarro was seen in a loan exhibition of 50 paintings at Wildenstein Galleries in October, for the benefit of Goddard Neighborhood Center. It was supplemented with works by other Impressionists and earlier painters who had influenced Pissarro.

Daumier.—"Daumier, Illustrator and Caricaturist" was one of the nation's outstanding shows in November. Held at the Providence, R. I. Museum, it comprised oil paintings and the most complete collection ever assembled in the United States of books illustrated by Daumier, a set of *La Caricatura* containing his political cartoons, and lithographs from Le Charivari.

Ralph Earl, 18th century American portraitist, was shown in a full-length exhibition by collaboration of the Whitney Museum of American Art, New York, and the Worcester, Mass. Museum, which showed 47 fine character portrayals of New England people of the Revolutionary and early Republic periods, and two landscapes. Worcester was Earl's birthplace.

Ernest Lawson, pioneer American Impressionist, was commemorated in an exhibition at Ferargil Galleries, New York, in March, held with the cooperation of Macbeth, Milch, Babcock, and Kraushaar Galleries, which covered his career from 1890 to 1940.

The Albrights, Ivan Le Lorraine and Malvin Marr (Zsissly), identical twins, were given an enormous double retrospective exhibition of paintings in New York City at Associated American Artists in October. They have always worked together, but do not paint alike.

Stuart Davis, eminent abstractionist, was given a one-man retrospective of 30 years at the Museum of Modern Art, New York, at the end of the year, lasting into 1946. He is termed a "painter in tune with his times."

MISCELLANY

Great Britain, despite the war, bought generously of paintings and other works in the American-British Goodwill Exhibition on tour in the British Isles, under the auspices of Artists for Victory: two paintings for the Tate Gallery, London; other paintings for the National Gallery of Scotland, the Glasgow Corporation, and City Library of Dundee; five paintings and sculpture were private purchases; 60 prints were purchased, 20 to be presented to Glasgow University.

Television scored in a successful transmission of paintings in full color from Columbia Broadcasting System's studios, with a color system developed by Dr. Peter C. Goldmark, director of engineering research. The telecast was described in *The New York Times* as having "superb clarity and beautifully detailed color."

Kennebunkport, Maine citizens revived the dissensions of the '30s concerning government art projects. Led by Booth Tarkington and Kenneth Roberts, novelist, the people raised more than $1,000 for a mural painting to replace those in their post office done under the WPA art project. The protest was carried to the U. S. Senate *via* Maine's Senator White.

AUCTION SALES AND PRICES

An Art auction sale held June 13, at the New School for Social Research, New York City, for the benefit of the 7th War Bond Drive, raised nearly $1,000,000 in war bonds. This sum, one of the highest amounts ever raised for such a purpose in New York, was credited to 130 artists and 13 dealers, who contributed paintings, drawings, and prints valued at $100.000. The highest bid for a single work was $86,000 in bonds for a portrait to be done by Nikol Schattenstein. "Freedom" by Lily Harmon fetched $75,000. The auction was conducted by Dale Elman of Hobby Lobby and Auction of the Air.

Parke-Bernet Galleries, New York, reported that sales for 1944-45 broke not only its previous records, but those of its predecessor, the American Art Association-Anderson Galleries, with a total of $6,165,920. The increase was in buyers rather than prices. There were 104 sales, 15 of paintings alone, others of paintings and other items. The Vanderbilt collection of Barbizon and genre paintings was one of two highest totals reached—$323,195. Millet's "Water Carrier" fetched $30,000, and Millet's "Sower" followed for $26,000. Incidentally, the "Sower" after 60 years in the Vanderbilt collection, went to the Provident Trust Company of Philadelphia, which has long used it as a trademark. Hals' "Laughing Child" went for $15,500; his "Laughing Boy" for $15,000; Van Dyck's "Constantin Huygens," $13,000; Millet's "Knitting Lesson," $12,500; Rembrandt's "Portrait of His Father," $11,500; Boldini's "Ladies of the First Empire," $11,000; Millet's "Shepherdess, Plains of Barbizon," $11,000; Renoir's "Femme Assise," $9,000.

The Kende Galleries, New York, confirmed Parke-Bernet's notice of increased public interest in genre works. Kende sales realized a total of $3,635,275 and included two famous art collections, those of Frank G. Logan and Jules Bache. Frederic Remington's "Dash for Timber" fetched $23,000, an unprecedented price for such a painting by that artist. Kende Galleries received the highest price for the entire season, for a single painting auctioned in New York, $41,000 for "The Baptism of Clorinda," by Tintoretto, from the Logan collection, sold in February. On the first night, 40 paintings sold for $87,495, including the Tintoretto. The entire Logan collection realized $131,020.

The new season began with the sensational sale of the Willys collection at Parke-Bernet on Oct. 25: the most important group to appear at public auction since 1928. Rembrandt's "Pilgrim at Prayer" fetched $75,000 from Billy Rose; Frans Hals' "Joseph Coymans," $34,250; Velasquez's "Portrait of a Girl," $30,000; Hobbema's "View of Watermill," $30,000, also "Laughing Child with a Dog," $14,000; Hans Memling's "Portrait of a Youth," $21,500. Sales totaled $313,950 for 36 items.

SCULPTURE

By Rose V. S. Berry
Art Critic and Writer

GENERAL

In discussing the peace that must follow the war, there is an insistent demand that there be an understanding of the cultural arts of all peoples. This does not mean an understanding of the amazingly distributed Parisian product of today. It is rather a knowledge of native art wherever it exists. It means a return to original sources—the art better known to ethnologists and archaeologists. It is a modern and comprehensive approach to that art, which Elie Faure says "expresses life, and is therefore as mysterious as life itself."

This demand is especially gratifying since it places art above the level assigned to it by modern psychology, which meets with the approval of some artists, as a product of "Man's Playtime." In the face of existing facts it is difficult to justify this attitude toward art. Since time immemorial the artist, as a gifted person, has been a man apart, envied by men of lesser endowment. In each instance the artist was highly regarded. His work was often associated with miracles, religion, even given the dignity of actual worship. With these truths in mind it is difficult to accept a "playtime" element even as a casual creative source. One can scarcely imagine Phidias, Praxitiles, or Scopas, as having given themselves over to "play" while cutting their masterpieces from a marble matrix.

On the other hand, no one will deny that the *spirit* of fun and "play" has been portrayed in the art of the ages, but it was portrayed by the master who had conquered his medium; and had made of himself the discerning critic capable of stopping within the hair's breadth that would make a smirk of a smile or a guffawing gesture of a sensitive pose. Extremes are to be met with, however, in the output of sculpture in 1945.

SCULPTURE UNDER WAR CONDITIONS

History repeats itself in that no one of the arts suffers such hardship as sculpture in troublesome times. An instance is manifest in the exhibitions of the opening of 1945's art season. Out of 143 exhibitions, ten carried sculpture, and three of the ten were one-man shows. Later in the season, out of 70 exhibitions throughout the states, and 73 in New York City alone, three of them carried the work of sculptors. Nevertheless, there have been some exceedingly interesting exhibitions, and some work of unusual originality, with the additional advantage of taking the observer into widespread localities.

NATIONAL ACADEMY EXHIBITION

Notable sculpture in the 119th Annual included work by Max Kalish, Joe Brown, Ruth Brassler, Cornelia Van A. Chapin, Beonne Boronda, Gaetano Cecere, Pietro Montana, and Henry Rox. In its annual election, the National Academy named Paul Manship as its second vice-president. The following sculptors were elected to associate membership: Cornelia Van A. Chapin, Frances Grimes, and Albert Stewart.

PENNSYLVANIA ACADEMY OF FINE ARTS

The Pennsylvania Academy of Fine Arts awarded its sculpture prizes as follows: Widener Memorial Medal to José de Creeft for his heroic portrait of Rachmaninoff; Honorable Mention to Oronzio Malderelli, for his Mare and Foal. Among other outstanding examples were Zadkine's France Imprisoned, Hugo Robus' Girl with Pretty Face, Ben Shmuel's Job, Chaim Gross' semi-abstract wood carving of a Bird's Nest, Jean de Marco's Saint Francis, William Zorach's Lament; Harry Rosin's Garden Figure; William Steig's Fool No. Two, and Carl Walter's Ceramic Dog.

WHITNEY GALLERIES

The re-opening of the Whitney Gallery, apart from the Metropolitan, was given to sculpture in two of its galleries. The critics felt it necessary to assert that the best work had been done by the "old guard." On the whole there was little or no new feeling or thought about the year's output. Mention was made of fewer than 20 examples, and four of these were cited as poor work by good men. Among those favored were: Henry Kries's Expectancy, done in Georgia marble; Zorach's Myra, a head done in marble; Herbert Ferber's Standing Figure, a caricature in black walnut; Chaim Gross' Twins, done in polished Sabacu wood; Noguchi's palm wood piece, like petrified driftwood formation; Maldarelli's Jemini; Kaz's Daniel and the Lion; José de Creeft's New Being. These were among the more interesting examples, while Paul Fiene's Torso American, hollow and made of Terracotta, was clever and neat modeling, as was Anita Weschler's Bust of Marilyn.

SCULPTURE AND ARCHITECTURE

A series of exhibitions of contemporary sculpture were given through the season in the Gallery of the Architectural League. The purpose was to exploit new trends in the association of the two arts. Among the sculptors exhibiting were Alexander Archipenko, Ernst Barlach, Alexander Calder, José de Creeft, Jean de Marco, Jacob Epstein, John B. Flannagan, Chaim Gross, Laston Lachaise, Jacques Lipchitz, Henry Moore, Hugo Robus, Ossip Zadkine, and William Zorach.

CHICAGO ARTISTS' ANNUAL

Prizes and awards were given to John David Brcin who received the grand prize for his portrait head of

Duvigne, and another prize went to Joseph Martinek's Martyr—Lynched Negro. Honorable Mention was awarded to Sylvia Judson for a sculptured head of John McCutcheon.

NEW YORK SOCIETY OF WOMEN ARTISTS

In 1945, women exhibited sculptures upon a high level, and among the examples receiving special mention were: Hunger, and a Head of Jeanne by Doris Caesar; two fine wood figures by Clara Shainess; Lady Godiva, a competent nude, by Hazel Jackson; Adolescence, a classic figure, and Frightened Evacues, by Berta Margoulies; Torso, carved in wood by Margaret Brassler Kane; A Mask: Aspect of Pain, by Mitzi Solomon; Fine Feathers, a whimsical study, by Frances M. Morgan; Lola, by Beatrice Stone; Ancestor, by Mary Kellner; Florence, by Arline Wingate. In addition there were several excellent portrait busts by Wingate, Stone, and Elizabeth Geiger. Beonne Boronda, Edith C. Barry, and Rhys Caparus exhibited animal subjects of merit.

WATSON COLLECTION TOUR

The Watson Collection Touring Hemisphere for Unity of Nations included American sculpture by Jo Davidson, Gutzon Borglum, Simon Moselsio, Charles Umlauf, and Hugo Robus.

ONE MAN SHOWS

At Bethlehem, Pa. were William M. Swallow's ceramic sculpture and Joseph Goethe's wood sculpture. At the Philadelphia Art Alliance was Mitzi Solomon's sculpture. Madelene Park and Florence Waterbury, gave joint sculpture exhibits at Elmira, N. Y. Patteran's ceramic sculpture was shown at Buffalo, N. Y., the Guild of Boston Sculpture (Collective) was shown in that city, and Gitow Knopp's sculpture at Houston, Tex.

In the New York City galleries, William Zorach's bronzes and marbles were shown at the Down Town Gallery; there was also Koren Der Harootian's big show, with a wide range of mediums, gains by study of silhouette in the round. The International Print Society exhibited Richmond Barthé's sculpture.

PRIZES, AWARDS, AND SCHOLARSHIPS

Guggenheim fellowships were granted to Adolph Dioda and Eleanor L. Platt for creative work in sculpture. A renewal of Donald A. Hord's fellowship was also granted. Robert Laurent received the Audubon Sculpture Award, for his alabaster Melisande. The Allied Artists of America gave mention to Peter Fingstin's Voice of Silence. The Annual New Jersey State Art Exhibition gave a cash award to Bruno Mankowski for his sculptured Fish.

PLACEMENTS

Wichita's (Kan.) Museum included William Zorach's Quest among its nine purchases. The Whitney Gallery purchased, for its permanent collection, The Twins, by Chaim Gross, and the Mine Disaster, by Berta Margoulies. Herbert Hazeltine's celebrated portraits of horses are coming to rest the whole world over. A recent bronze of heroic size, commissioned by an Indian Maharajah, has been placed in a large hunting park at his estate in India where it has a superb vista.

SCULPTURE TRENDS

The sculpture story for 1945 would not be complete if some of the definite trends and departures were not cited. In many ways, four years of war have driven art lovers into a search for new mediums and intriguing form. In some ventures the result has been entirely realistic; in others it has led straight into the vast and mystic realm of the abstract, with vagaries, that include the *nothingness* of nothing or the kind of inner reality that did not exist before in the confines of the art of sculpture. To some observers the accomplishment may seem trite; to others it will open new avenues of approach, beginning, it may be with a laugh, and ending with wonderment.

THE FOX FRUITS AND VEGETABLE SCULPTURE

Examples of the first would be found in the surprising photographs of fruit and vegetable sculpture, shown by Henry Fox of Concord, N. H. This evidence of an unexpected sculpturesque presence is hardly less amusing than the portraits that a search will reveal in the blossom-tip of the hickory nut, and these will be rivaled, for humor, in the possibility of an ill-shaped, rotund peanut that may supply a torso for it's comical head and face. Almost anyone with a little imagination will discover that these nuts require blots of ink for eyes, and some character lines only, to become clever gremlins and grotesques. If this may be regarded as sculpture, it differs in that the artist begins with a lump, core, or kernel already fashioned for his use. It ends with height, breadth, and thickness, the component essentials of the art in the round. They are comparable, in a humble way, with ill-shaped precious stones, pearls, and valuable metal nuggets that have inspired gold- and silversmiths since the days of the Renaissance. The fact that each is an entity, incapable of being reproduced, in its unique aspect adds to its attraction, the chief element of which is a recognizable naturalistic appearance.

THE HEBALD SCULPTURE

A second type of sculpture, entirely genuine as an art requiring modeling and the sculptor's skill, is that with which Milton Hebald has won special interest. He calls it Sculpture with Which to Play. The example, which intrigued photographer Sheeler consisted of two separable figures, each of them possessed of amazing life and action. They are stylized but not sufficiently so to disturb their naturalistic qualities. The composition is called The Bulldozer. With a many-gallon sombrero, outstretched arms, and bowed legs shaped to fit the back of the bull from neck to rump, the diminutive cowboy rider has hook-clinching hands which attach him to the bull's horns or tail. Consequently, he is master of the bull riding either forwards or backwards, and he may be placed anywhere. He can fall off the bull at any angle; he can light in any position on the ground, when he is even more unexpectedly comical, for his pose is still closely allied with the bucking bull. To move The Bulldozer, in the least, is to create a different composition; therefore, *"to play"* with Hebald's ably conceived and executed group is to put on an endless rodeo act.

RANDOLPH WARDELL JOHNSTON

Entirely different in theme and character, but similar in that the figures are detached, is a group of small sculptures included in the large one-man show of Randolph Wardell Johnston, teacher of sculpture, at Smith College. This unusual conception is entitled The Five That Escaped, meaning Nazi persecution. The characterization of these bronze figures is easy to imagine, though one might challenge the ability of the artist to convey in any medium an adequate idea of the state of mind produced by such suffering, passing over the indescribable reaction upon the mind and spirit of one doomed, and then rescued, from such a fate. However, in so far as different groupings might present with varying emphasis their tragic experience, the sculptor has made it possible to adjust the figures to numerous phases of interpretation.

THE IDEA OF DETACHED FIGURES

The idea of detached figures is not new; it is the modern presentation that surprises the observer. Johnston, most definitely, and Hebald, in a way, have had predecessors. Michelangelo had a majestic sort of unity in mind for his vast project that would have been the Tomb of Julius II. Rodin's "Gates of Hell," upon which he worked for upwards of a quarter century, would have been an assemblage of sculptures portraying the tragic end of all humanity. In later years, Rodin with his Calais commission, greatly simplified the drama, but he made it current history—personal and local—when he sent forth the Bourgeois de Calais, to deliver the keys of the city to their conquerors. This detached, sculptured group aroused comment throughout the art world. The work, however, that is more nearly akin to that of Hebald, is that of Eli Nadelman's detached caricatures, in which with chairs and tables, he depicts café scenes from Paris sidewalks.

THE ABSTRACT ELEMENT

As the seasons pass, the abstract element is coming into greater prominence in sculpture. The nature of the art adds greatly to the difficulty of abstractions in a sculptured form. There is always the danger of getting too near the forms that belong to machinery, which, though they might possess a type of beauty, are too commonplace to take on aesthetic value. Therefore, the abstract in sculpture is largely dependent upon a newly invented form, or shape, and such originality is rare. Movement, which has been a goal for both sculpture and painting, as described in the previous detached examples, becomes static or temporarily fixed, the instant the groups are readjusted; consequently, it is through Alexander Calder's Mobiles and Stabiles—and those who imitate them—that one sees the two qualities of movement and abstraction. Calder's compositions are far in the lead of all such endeavor.

In 1945, New York's Museum of Modern Art exhibited one of the most lovely and intricately designed Calder compositions. It is made of aluminum steel wire, a medium that supplies a soft, appealing color and abundantly rich detail to the object, which is from the collection of Mrs. Meric Callery of New York. This example differs from other Mobiles or Stabiles that have been exhibited; there is a unity in it that grips the imagination. There is the feeling that suddenly the trappings of something splendid—maybe a pipe organ—have fallen away and left the soul quite bare.

WOOD SCULPTURE FROM THE SIERRAS

A pre-holiday exhibition of something utterly novel in sculpture aroused unexpected and widespread interest in San Francisco, where it was shown in Gump's Galleries. Upwards of 50 examples—a small portion of a large reserve—represented the effort and appreciative discernment of two Berkeley women, Mrs. Emily Nelson, a painter of ability, and Mrs. Helen Snyder, a clever operator in several of the more difficult crafts.

Deprived of artistic supplies by priorities and war shortages, and conscious for years of the beauties in the wastewood with which the high Sierras, where they spend their summers, are strewn, in 1945 they brought down some choice specimens. Here in a wonderfully equipped shop, they cut away the pulpy dead wood and soft bark until they reached the hardwood kernel. Impossible attenuations were snipped off. A base was then flattened at the best angle, and the piece mounted upon a similar or contrasting wooden block; some were perched upon ivory. As a preservative, the pieces were waxed or oiled, with the result that figures and forms, abstractions and grotesques, that would have baffled the world's most skilful sculptors of wood, stood out to astonish the observer. In subject —as they impressed the visitors—the examples passed from snakes to birds, to fish and mastodons, from devils to saints and seated Madonnas. Many were of such outstanding Greek character that a student of Greek sculpture could almost name them. The amazing part of all of it was that there was scarcely a naturalistic quality in a single example. They were familiar only as the visitor was acquainted with sculpture.

From surfaces of ivory smoothness to rhythmic decoration so fine that it beggars description, the pieces—each unique and impossible to reproduce—abounded. Gouged depressions, nobules fittingly placed, swirled lines so fine that they rival fingerprints; flowing, repetitive lines of extraordinary beauty and richness adorn many pieces. In addition, some of the wood carries wholly unexpected color. In size this new sculpture, plucked from the birth-to-death process of improvident Nature, as old as yesterday in its conception but anywhere from 2,000 to 4,000 years according to its tree-rings, weighs a ton or upwards, in contrast with tiny bits that can rest on the palm of the hand over which the finger-tips may close.

Whatever of crudeness remains inherent in the wood lends strength to the object. The beauty born of the wood's struggle with the elements and life is so different in its power that it is an embarrassment to the artificial charm wrought by a mallet and chisel.

ARCHITECTURE

By Frank G. Lopez
Editor, *Progressive Architecture*

CHANGING PROFESSIONAL PRACTICE

During 1945, the practice of architecture changed. Some of the changes can be roughly evaluated; others, more intangible, are less easy to assess. The business aspects of professional practice was profoundly affected by the war and by its termination. In so far as architecture is a science, architectural thought was stimulated by the scientific activity of wartime, although measurable results are limited. The social significance of architecture, which was beginning to gain recognition before Pearl Harbor and seemed about to assume its true importance when, during the war, people in widely diverse regions of the country began to plan ahead for better cities, better housing, better buildings of all sorts, has been partly submerged by the first waves of post-war prosperity. Another side of professional practice is harder to evaluate, although it has no less importance: the trend toward contemporary design, not just what is loosely called "modern" architecture, but rather a true, original expression of contemporary *mores* by means of available materials, as opposed to stylistic or eclectic design.

THE HOUSING AND CONSTRUCTION SITUATION

As successes multiplied on the war fronts, prophecies of housing shortage began to be heard, but nothing much was done about an obviously bad situation. During the war construction had been practically at a standstill because of the War Production Board's necessary Order L-41. After Germany's and Japan's surrender, WPB rescinded its prohibition (Oct. 15), and for a few months anyone could build anything, materials priorities were dispensed with, and the small stocks of materials available began to vanish. There had not been time to replenish them; production for peace could not begin on a sufficient scale to satisfy the tremendous accumulated demand until designing and production facilities had been "reconverted." The public, too, had more money to spend and had grown accustomed to the marvels of war production, so that many manufacturers were impelled to produce new or improved building products and equipment; the old would no longer satisfy.

With the flow of supplies thus a trickle when a spate was needed, and with the housing crisis so acute that both the public and politicians could no longer ignore it, the Civilian Production Administration, successor to WPB, began to formulate a new method of control over construction. In December, CPA announced a tentative program of priorities on certain key building materials, to be applied shortly after the new year began. The intent was to channel available critical materials into low-cost housing.

No limit was to be placed, however, on what kind or price-class of construction might proceed—if materials could be secured.

Though confused, the materials situation was simple in comparison with the status of architectural practice. Aside from war work, a few architects had been busy on private projects for post-war construction. For a time, termination of hostilities and the rescinding of Order L-41 speeded up such work; and the difficulties which led CPA to reestablish materials priorities caused no appreciable slowdown. More and more offices became busy as plans for private building multiplied tremendously, and in spite of difficulties actual private construction contracts increased to levels comparable with those of the most active pre-war years. Everyone recognized that the increase, even so great, was yet not great enough.

THE POST-WAR MANPOWER FACTOR

At the same time the profession was suffering from an acute manpower shortage. Trained men and women had perforce drifted to other occupations during the architecturally idle years, some to war production in aviation, ship design, etc., some to the more "essential" civilian pursuits, some to the armed services; of these, some will never return to architecture. Those who come back have much catching-up to do; their skills are rusty, and technical advance has not waited for them. Meanwhile, the architectural schools have had low enrollments and fewer graduates, so that this source of continuing manpower replacement has temporarily run nearly dry. However, post-war enrollments show signs of substantial increase.

THE DESIGN PROBLEM

Reflected in the attitude and capabilities of those students who have graduated from school to office is another difficulty that besets the architectural practitioner. It is also expressed in professional magazines. It is discussed with the "standard" solution to an architectural problem, or to state it positively, appreciation and preference for, and to a varying degree training in, what might be termed the exploratory approach to design. This consists of a thorough original analysis of the needs a given structure must satisfy, and a solution based upon logic, in whose development the extraneous is ruthlessly discarded, the essential equally ruthlessly exploited. The approach is not easily comprehended by those who were trained otherwise, and the frank, honest results achieved by its application have, in many cases, repelled not only the designer schooled to revere precedent but also the pseudo-sophisticated client who has a position to protect. There is ample testimony, however, that the unpretentious client who has a rigid need to get him the most for his money, and the rich one who can afford to be different, is increasing in number, in appreciation of contemporary design; and their architects are developing the capacity to apply those subtle refinements of program and solution which are the only true bases for the sound formulation of an indigenous contemporary esthetic, or for development of a true "style," a different matter than the indiscriminate copyism from which most American architecture has suffered.

THE MODERN TREND IN HOUSE DESIGN

Periodicals have played a great part in this trend, particularly as it applies to house design. The manufacturer has accepted the modern trend in design of industrial buildings because it accents efficiency, although many plants are still burdened with impressive, stylish front offices, and others are falsely, tiresomely streamlined. The shopkeeper has accepted it for stores for much the same reasons and because he has to pay exhorbitant rentals for small footages; and because it is stylish and his business thrives on style. The home-owner, on the other hand, is slow to accept it. Modernism is relegated to bathrooms, kitchens, laundries, heating plants, lighting systems, radio, television, telephone, plumbing, and the like. The shell of the house, generally speaking, and what are loosely called "living" quarters—living room, bedroom, dining room—remain strongly reminiscent of past glory. Except for a few examples, this anomaly exists in most American houses. It is deep-rooted, and there is much honest, serious doubt that better houses would automatically result if it were abolished; yet in the face of such persistent habit, not only the professional publications but also ladies' and household magazines, as well as five- and ten-cent weeklies, have begun to explore what they popularly call the modern style. Whether *The Ladies Home Journal* and *Life* magazines publish contemporary houses out of sincere belief or to exploit them does not matter here; what does matter is the unexpectedly enthusiastic response of their readers. It matters because the architect, generally speaking, gives his client what the client wants. The architect, who, like a doctor, can successfully prescribe what is best for his patient, is still rare.

POST-WAR CONDITIONS AND PLANNING

Speaking from the point of view of the sincerely progressive architect interested in contemporary design, there are other regressions. During the war, while the successful conservative's energy was turned to making money out of producing for destruction, many people began taking stock of their environment. They did not like what they found. They sincerely believed the war was being fought for a better world, however hackneyed the phrase might be, and in many cities they began to agitate, to meet, to survey existing conditions, and eventually to plan to better them. The first national indication of opposition to planning came before 1945, when the National Resources Planning Board was sabotaged in Congress. NRPB, among other things, had fostered city planning. Portland, Ore. was one sphere of such activity, and when NRPB vanished, the people of Portland found ways to carry on. Yet the reasonable, realistic, and progressive plan submitted by the Portland commission was overwhelmingly rejected in the 1945 elections. Toledo, O. underwent a similar experience, but here there were other factors at work. The scheme proposed by Norman Bel Geddes & Company was exalted rather than realistic.

TENNESSEE VALLEY AUTHORITY

Structures actually completed during the year were limited, as they had been all during the war, to war-productive building and to a few essential works such as schools and hospitals. War housing was substantially completed early in the year. Noteworthy as a social advance was the emphasis on community facilities—an advance which will probably become a casualty as pragmatists regain ascendancy. The Tennessee Valley Authority completed the last of its great dams, bringing to a close TVA's great period of expansion, a period unparalleled in the world's history. For TVA, now begins the era of consolidation, less exciting but potentially more dangerous because great power, temporal and physical, is concentrated in it, an era in which those entrusted with sober development must constantly guard against unwise exploitation. Architecturally, the transition is significant for many reasons, among them the successful completion of a vast, costly program; the interest of technicians, planners, and politicians from all the depressed regions of the earth—from Europe, from the Soviet, from India, from South America, to name a few; and the quiet dispersal of many of the architectural men who assisted TVA from birth to puberty, whose talents lay in creation, not in maintenance.

OAK RIDGE, TENNESSEE

Of nowhere near comparable significance—really not comparable—yet astounding in its implications, was the Manhattan Project, the U. S. military agency that developed the atomic bomb. Of the several factory-cities all built from scratch, that in the

Tennessee Valley, called Oak Ridge, is the most completely documented architecturally. The municipality of Oak Ridge did not exist, even in name, on Nov. 1, 1942. By the autumn of 1945 it was a city of 75,000 inhabitants, all employed in producing the atomic bomb—the fifth largest city in Tennessee, complete with the most extensive, solidly built industrial buildings, with houses, multifamily dwellings, dormitories; recreational, educational, shopping, and health facilities—theatres, schools, stores, community center, hospital, clinics. Oak Ridge was developed in stages; the first, early in 1943, consisted of 3,000 houses designed by Skidmore, Owings, and Merrill in conjunction with the John B. Pierce Foundation, laid out in three planned neighborhoods with a central shopping district. Late in 1943, 5,000 more dwellings were added; these were TVA units of the type first developed by TVA architects to house personnel engaged in construction of dams. In July 1945, a third increment of 1,500 houses was started.

Although Oak Ridge was an emergency job, and was thus rushed to completion almost overnight, it was also an intelligently planned community—one of the best, considering all its phases, in the country's history. The standard of design for most of the structures was exceptionally high, especially in view of the assembly-line, mass-production techniques employed in their construction. Each type of operation was allotted to its specially selected crew, which moved from structure to structure performing its specialty and was followed by another crew of specialists, and another, until a whole group of buildings was completed. Some structures were permanent, some temporary; the factories were the most solidly built of all. Perhaps the most striking fact was that no hint of Oak Ridge appeared in the press until its products were loosed on Japan. Perhaps the most ironic is that the substantial factories will undoubtedly become obsolete within six months, as knowledge of atomic production increases; while even the temporary houses may function satisfactorily for years.

HOSPITAL DESIGN

Other noteworthy developments during the year included standard plans for hospitals and hospital units, clinics, etc., prepared by the U. S. Public Health Service under the guidance of Marshall Schaffer, chief architect. Thoroughly documented in the architectural press, these will undoubtedly influence hospital design strongly.

EXAMPLES OF NON-WAR DESIGN

Almost uniformly, work published in the architectural magazines was contemporary in handling. At the same time, there was increasing emphasis on appeal to the senses, whether in advantage taken of pleasing sites or in refinement and full development of the possibilities of the buildings themselves. There was a conscious probing into the relations of buildings to their surroundings. While ornament for ornament's sake was still anathema to editors and to the architects whose work they published, so also was stark nakedness. Of the non-war work, some pre-war, some pre-1945, some projected post-war, a few examples stand out: Midland Hospital, Midland, Mich., by Alden B. Dow; Little Traverse Hospital, Petoskey, Mich., by Skidmore, Owings & Merrill; Sill Building, demountable modular office building in Bakersfield, Calif., by Franklin & Kump; the proposed Schenley Building for Cincinnati, O., by Woodie Garber; the proposed United Nations Center for San Francisco, by Wurster, Bernardi & Born, destined never to be built; the proposed plans for Toledo and for Portland, Ore., likewise stillborn as previously noted; and houses in Petaluma and Redwood City, Calif., by W. W. Wurster; in Claremont, Calif., by Millard Sheets; in Bowmanstown, Penn., by Paul Beidler; in San Francisco, by Gardner Dailey; and in Dobbs Ferry, N. Y., by Julius Gregory. There were also Carmel High School, Carmel-by-the-sea, Calif., by Franklin & Kump, which proved that logical modular design did not rule out prettiness; and Perkins, Wheeler & Will's Rugen School, in Glenview, Ill., in which logical design approached beauty.

EXAMPLES OF WAR CONSTRUCTION

Buildings whose construction was caused by the war included: Washington, D. C., Port of Aerial Embarkation, by Charles M. Goodman; schools, theatres, and community buildings in war housing projects, notably those in and near Seattle, by Stuart, Kirk & Durham; Jones, Bouillon, Thiry & Sylliaassen; and Pietro Belluschi; similar buildings in Vallejo, Calif., by Bernardi, Wickenden, Langhorst, and Funk; Jackson School, Wayne Co., Mich., by O'Dell, Hewlett & Luckenback; the Consolidated-Vultee Airplane Plant at Fort Worth, Texas, by the Austin Co.; and the Headquarters Building, Hershey Metal Products Co., Ansonia, Conn., by Leo F. Caproni, who demonstrated that it was not necessary to resort to vulgar display to impress those who entered a manufacturer's offices.

In this list there are many new firm names. Others have appeared in professional journals and in lists of work in progress offered by the purveyors of construction news; and a great percentage of the new names are responsible for private work. Public works generally, particularly in the larger metropolitan centers, are being entrusted to well established old-line firms. This is to be expected, and it is not unhealthy, considering that the United States is a democracy, to have the stimulus to change, to advance, come from private life rather than from an omnipotent higher authority.

MUSIC AND THE OPERA

By RONALD F. EYER

EDITOR, *Musical America*

GENERAL

A year which brought some of the most difficult days of the war and then sudden victory in two hemispheres was an eventful one for music. Transportation problems which were foreseen as a serious deterrent earlier in the war, affecting the movements of performers and public alike, were solved or compromised with remarkable resourcefulness. There were no casualties among important musical institutions because of war conditions.

On the contrary, music received a marked stimulus during the war period, attributable in large part, no doubt, to the unusual amount of "free money" circulating among the civilian population which could not be spent on consumer goods and thus went in larger quantities for entertainment and cultural pursuits of one kind and another. This condition was quickly reflected in the concert halls and opera houses of the nation. "Standing room only!" was a common cry at musical performances, and the Metropolitan Opera Association ended its 1944-45 season with that greatest of operatic novelties—an operating profit. Many leading concert artists and soloists had offers of more engagements than they possibly could fill, and the situation generally was highly productive, financially as well as artistically.

Virtually all musical artists, including such stars as Lily Pons, Marjorie Lawrence, Jascha Heifetz, and Yehudi Menuhin, to mention only a few, gave generously of their time and energy to the entertainment of American servicemen at home and abroad. Some circled the globe to sing and play for the men in the remotest theaters of operations under the auspices of the United Service Organizations. Many symphony orchestras also gave special performances for members of the armed forces, frequently traveling to army camps and naval stations for such appearances. Although the war is over, millions of men still are in uniform, and the need for such entertainment is still felt. Most artists, therefore, continue to allot considerable time to service performances.

OPERA AT THE METROPOLITAN

The first performance of the year at the Metropolitan, coming in the midst of the company's 1944-45 season, was a routine performance of "Aïda." However, the second half of the season included several of the year's most significant revivals. On Jan. 12, 1945, Wagner's "Die Meistersinger" returned to the repertoire after an absence of five years. This work had been off the boards for that period, partly because there seemed to be no immediate successor to Friedrich Schorr (retired) as Hans Sachs, and partly because stories had been circulated that there was some connection between the opera and certain phases of the Nazi ideology, the latter, of course, being arrant nonsense. Herbert Janssen was the new Sachs, with Eleanor Steber, Kerstin Thorborg, Charles Kullman, and Gerhard Pechner in the other leading roles. Rimsky-Korsakoff's "The Golden Cockerel" returned in an English version on March 1 with Patrice Munsel and Norman Cordon as the leading protagonists. "La Gioconda," preceding this on Jan. 25, also was something of a novelty. The two "Ring" cycles, the first beginning Feb. 2, the second March 17, was made notable by the presence of George Szell at the conductor's desk. The latter date also saw the revival of Beethoven's "Fidelio," sung in English by an almost completely American cast. Bruno Walter conducted. The final performance was "Götterdämmerung" on March 31, whereupon the company embarked on its post-season tour, giving 12 performances in Boston, eight in Cleveland, seven in Chicago, two in Milwaukee, four in Minneapolis, and one in Rochester.

The 1945-46 season opened on Nov. 26 with "Lohengrin" in which Torsten Ralf, Swedish tenor, and Fritz Busch, conductor, made their Metropolitan debuts. This was the first revival of the season which was also to bring Gounod's "Romeo et Juliette," Verdi's "The Masked Ball" and "Otello," "Don Pasquale" in double bill with Puccini's "Il Tabarro," as well as the latter's "Madame Butterfly" and "Tosca," Offenbach's "Tales of Hoffmann," and Strauss's "Salome." Busch was scheduled to conduct a centennial revival of "Tannhäuse."

Among important debuts of the year, in addition to those already mentioned, were those of Mimi Benzell in "The Magic Flute" on Jan. 5; Frederick Gynrod in "Tristan und Isolde" on Feb. 3; Richard Tucker in "La Gioconda" on Jan. 25; Kenneth Schon in "Fidelio" on March 17; Dorothy Kirsten in "La Boheme" on Dec. 1; Pierette Alarie in "The Masked Ball" on Dec. 8; and Robert Merrill in "La Traviata" on Dec. 15.

No essential changes took place in the Metropolitan Opera administration or operations during the year except that the opera house itself for the first time was exempt from real estate taxation. This fact made possible the operating surplus mentioned before. An important gift was a check for $30,000 presented on the occasion of its tenth anniversary by the Metropolitan Opera Guild to be used for mounting new productions. Edward Johnson continues as general manager.

OTHER OPERA

The Chicago Opera, the San Francisco Opera, and the New York City Center Opera also enjoyed successful tenures during the year. The Chicago and the San Francisco companies are largely duplications, both in casts and in productions, of the Metropolitan, although their local character is maintained in the chorus, ballet, and orchestra and in the overall direction.

Chicago had a six weeks' season opening on Oct. 8 with "Manon" which was a revival in that city. Other revivals there were "The Barber of Seville," "The Marriage of

Figaro," "Parsifal," "Cavalleria Rusticana," "Pagliacci," and "Forza del Destino." In addition to its home season, the company gave three performances in Milwaukee.

The San Francisco season began with "Carmen" on Sept. 25. Four weeks had been planned, but so great were the box office demands that a fifth week was added. Transportation difficulties forced the cancellation of scheduled appearances in Seattle and Portland, but the company had its regular two weeks' season in Los Angeles with performances also planned in Sacramento and San José.

Wagner's "The Flying Dutchman," not heard in New York in several years, was the first performance of the spring season at the New York City Center on April 12. Other works presented were "Faust," "La Traviata," "Cavalleria Rusticana," "Pagliacci," "The Gypsy Baron," "Manon Lescaut," and "La Boheme." A revamped version of "La Vie Parisienne" was given a pre-season performance on Jan. 12. The fall season began on Sept. 27 with "Tosca" which, with "The Bartered Bride," augmented the same repertoire as was given in the spring.

TOURING OPERA

Prominent among the touring companies was the Philadelphia La Scala which gave a series of six festival performances in Pittsburgh May 3-9. Its 1945-46 season began on Sept. 24 with a repertoire of 21 operas and included scheduled performances in Detroit, Buffalo, Pittsburgh, Washington, and Baltimore, in addition to 15 in Philadelphia. The San Carlo Opera Company, in addition to its traditional tour, had a New York season May 16-26. In Newark, N. J., the Griffith Music Foundation sponsored an opera festival of six performances on May 10 to 15. The Cincinnati Summer Opera presented 18 works between June 24 and Aug. 4, and Dayton, O., had its regular festival of six performances on May 16 to 20. Local opera ventures also prospered in Hartford, Conn., Trenton, N. J., New Orleans, La., Union City, N. J., Flint, Mich., and other smaller communities.

MUSIC FESTIVALS

Prominent among general music festivals was the venerable Worcester Festival which entered its 86th year on Oct. 8. The Philadelphia Orchestra, under Eugene Ormandy, was the main participant, aided by a list of soloists including Dorothy Maynor, Rudolf Serkin, Donald Dame, Stella Roman, Jean Watson, and Lansing Hatfield. Major works performed were the Rossini "Stabat Mater" and Marion Bauer's cantata, "China."

In addition, there were Columbia University's first annual festival of American music on May 12; the Tanglewood Festivals, directed by Serge Koussevitzky, July 28-29, and Aug. 4-5, 11 and 12; the Bethlehem Bach Festival, conducted by Ifor Jones, May 18-19; the Philadelphia Bach Festival May 25-26; the Ann Arbor Festival, May 3-6, and the Piedmont Festival, July 25-28. Most of the festivals, with the exception of those devoted exclusively to Bach, presented varied programs embodying orchestral, choral, solo, and sometimes operatic elements. Some of them introduced new compositions which are mentioned elsewhere in this article.

NEW YORK PHILHARMONIC SYMPHONY

The New York Philharmonic Symphony, the oldest symphony orchestra in America and one of the two oldest in the world, began its 104th season in Carnegie Hall on Oct. 4 under the baton of its musical director, Artur Rodzinski. The closing weeks of the previous season were peculiarly marked by the death of President Roosevelt on April 12 when a regular subscription concert on that evening was cancelled, the first such cancellation by the Philharmonic since the assassination of Abraham Lincoln. Shortly before, on March 29 and April 1, Bruno Walter had conducted notable performances of the "St. Matthew Passion." With broadcasts every Sunday under the sponsorship of the

U. S. Rubber Co., the Philharmonic Symphony has become a year-round orchestra, and its activities have wide ramifications. Beginning June 18, it took up its nightly duties at Lewisohn Stadium where it continued for eight weeks under a series of guest conductors including Alexander Smallens, Leonard Bernstein, Eugene Goossens, Fabien Sevitzky, and Ignace Strasfogel.

Conductors for the regular Winter season of 1945-46, in addition to Rodzinski, were George Szell, Bruno Walter, Igor Stravinsky, and Howard Hanson. Young Walter Hendl was engaged as assistant conductor. Rudolph Ganz continued as conductor of the children's concerts. There were no appreciable changes in the regular concert schedules from recent seasons. The weekly subscription concerts on Thursday nights, Friday afternoons, and Sunday afternoons, were supplemented as usual by the special students series on Saturday nights. One of the most comprehensive undertakings of the season was a performance of the complete third act of "Die Walküre" in concert form on Nov. 22. Helen Traubel and Herbert Janssen were the principal soloists in this excerpt under the baton of Rodzinski.

NBC SYMPHONY

The NBC Symphony continued to be heard over the air weekly on Sunday afternoon from 5 to 6 o'clock under the commercial sponsorship of General Motors. Arturo Toscanini is regular conductor of the orchestra's winter series, while Frank Black takes over during the summer. Occasional guests officiate during Toscanini's term. Eugene Ormandy and the British conductor, Malcolm Sargent, were guests during the first half of the year, and their places were taken in the second half by Dimitri Mitropoulos and Erich Kleiber. The winter series began on Oct. 28, marking Toscanini's eighth year at the helm.

NEW YORK CITY SYMPHONY

An important newcomer to the New York orchestral scene is the New York City Symphony, founded at the City Center by Leopold Stokowski and now conducted by Leonard Bernstein. The orchestra gives a series of 12 Monday evening concerts extending fortnightly until April 1. These are supplemented by a series of concerts on Tuesdays at 6 p. m., an unusual hour chosen for the convenience of patrons who are unable to attend performances later in the evening. This has proved a highly successful innovation.

PHILADELPHIA ORCHESTRA

The Philadelphia Orchestra concluded its 1944-45 season on April 27 with a total of 150 concerts, 48 of which were given on tour in the United States and Canada. In addition to its own schedule, it appeared in conjunction with the Worcester and the Ann Arbor festivals. The annual summer concerts at Robin Hood Dell, now in their 16th season, took place between June 18 and Aug. 3 with Dimitri Mitropoulos occupying his new position as artistic director and conductor. The Orchestra's 46th season began on Sept. 28 under its regular conductor, Eugene Ormandy, with plans for 28 pairs of regular concerts in addition to various series of special concerts and a number of out of town appearances in New York, Baltimore, Washington, Richmond, Harrisburg, and other cities. Among guest conductors are listed Pierre Monteux, Bruno Walter, Saul Caston and Alexander Hilsberg, new associate conductor.

BOSTON SYMPHONY

After a brief respite following the conclusion of its 1944-45 season on April 28, the Boston Symphony launched into its 60th season of "Pop" concerts on May 1 under the direction of Arthur Fiedler. Guest conductors, occasionally relieving the veteran, Serge Koussevitzky, during the preceding winter series, were George Szell, Hietor Villa-Lobos, and Richard Burgin. The usual Esplanade concerts followed the "Pops" during the summer, and the orchestra resumed its regular activities at Symphony

Hall on Oct. 5, beginning the orchestra's 65th year. The customary 24 Friday afternoon concerts and 24 Saturday night concerts were slated, with plans for a new series on Sundays, as well as the traditional out-of-town engagements in New York and elsewhere. An important new element in the Bostonians' activities is the series of Saturday evening broadcasts sponsored weekly by the Allis-Chalmers Co. These broadcasts are of one-hour duration and originate in whatever city the orchestra happens to be playing in at the time.

CHICAGO SYMPHONY

The Chicago Symphony, of which Désiré Defauw is conductor and Hans Lange, assistant conductor, planned 106 concerts in Orchestra Hall for 1945-46 with a list of 22 soloists engaged. The 28 pairs of subscription concerts on Thursday evenings and Friday afternoons began on Oct. 4 and were supplemented by 12 Tuesday afternoon events, 16 popular concerts, and 12 concerts for young people, the latter on the first and third Tuesdays of every month. The orchestra also gives 10 concerts in Milwaukee during the year and makes weekly broadcasts over radio station WCFL under the sponsorship of the Chicago Title and Trust Co.

CLEVELAND ORCHESTRA

The return of Erich Leinsdorf from the Army placed him again in charge of the Cleveland Orchestra where he has Rudolph Ringwall as his associate. Vladimir Golschmann and George Szell were engaged for guest appearances on the podium. A heavy calendar of events opened on Oct. 11 and called for 20 pairs of subscription concerts plus 10 to 14 summer popular concerts, 14 twilight concerts, 24 educational programs, and 34 concerts on tour. Dr. Ringwall gives two series in the twilight group, and 12 soloists were engaged for various performances.

SAN FRANCISCO SYMPHONY

Saturday night concerts have proved particularly popular with patrons of the San Francisco Symphony which opened its 1945-46 season on Nov. 23. With Pierre Monteux as conductor, the orchestra gives three regular subscriptions series: 12 Friday afternoons, two Thursday nights, and 14 Saturday nights. Soloists appear in most programs. In addition to the regular series, there are four young people's concerts, conducted by Rudolph Ganz, and out-of-town engagements at Fresno, Berkeley, Stanford University and San José. The Golden Gate players also are heard in eight Standard Symphony broadcasts. The season closes on April 13.

LOS ANGELES PHILHARMONIC

The Los Angeles Philharmonic, which ended its 1944-45 season on April 5, resumed operations on Nov. 15 with a program of 86 concerts in Los Angeles, San Diego, Claremont, Beverly Hills, Whittier, Long Beach, Alhambra, Pasadena, San Pedro, Santa Monica, Santa Barbara, Glendale, San Fernando, Bakersfield, and Van Nuys—46 home concerts, 40 outside. A highlight of the fall season was Verdi's "Requiem" on Nov. 22-23 with Rose Bampton, Eula Beal, Frederick Jagel, and Douglas Beatty as soloists. Otto Klemperer was guest conductor on Dec. 13 and 14. The orchestra also gives 13 concerts, called Symphonies for Youth, which are broadcast by the American Broadcasting Co. Alfred Wallenstein is musical director and principal conductor.

DETROIT SYMPHONY

The spectacularly revitalized Detroit Symphony opened its fall season on Oct. 25 with Karl Krueger, conductor, and Valter Poole, assistant conductor. At Masonic Auditorium, the orchestra gives 20 Thursday evening subscription concerts, ending March 14. Two special concerts at Music Hall, Dec. 27-28, were conducted by Poole with Eugene List as soloist. A series of children's concerts are given on Wednesdays.

CINCINNATI SYMPHONY

A widely varied schedule of concerts was planned for the Cincinnati

Symphony's 1945-46 season. With Eugene Goossens as conductor, the orchestra set out on a schedule on Oct. 5, calling for 20 pairs of subscription concerts in the local Music Hall besides three performances in conjunction with the Ballet Theatre, three young people's concerts, two junior high concerts, seven popular concerts, and 35 out-of-town engagements through the East, South, and Middle West. Leonard Bernstein was guest conductor on Nov. 2-3. The orchestra concluded its Golden Anniversary year on April 12, during which there were several special concerts and anniversary observations.

MINNEAPOLIS SYMPHONY

The Minneapolis Symphony, which makes its home on the campus of the University of Minnesota, serves both its home city and St. Paul under the directorship of Dimitri Mitropoulos. Yves Chardon is assistant conductor. The season extends from Oct. 26 to April 5 with a total of 39 concerts, 18 of which are regular Friday subscription concerts. Leonard Bernstein and Erich Leinsdorf were engaged as guest conductors for the regular series. In addition, the seven Sunday twilight concerts brought Tauno Hannikainen in a guest appearance on the podium; there were three performances with the Ballet Theatre; nine young people's concerts as well as a pension fund popular concert, an extra concert with Marian Anderson as soloist; a concert at St. Olaf College and three in Winnipeg were on the agenda.

ST. LOUIS SYMPHONY

Vladimir Golschmann, with the assistance of Harry Farbman, directed the artistic course of the St. Louis Symphony. The season extends from Oct. 19 to March 2 with 20 pairs of subscription concerts, including 20 concerts on Saturday nights and 10 each on alternate Friday and Sunday afternoons. The orchestra also gives six school concerts, several "Pop" concerts, and extra concerts with visiting conductors. This year Leonard Bernstein was a guest batonist. Four appearances with the Ballet Theatre were scheduled for after the first of the year.

INDIANAPOLIS SYMPHONY

The Indianapolis Symphony, Fabien Sevitzky, conductor, had the unusual distinction in its 1945-46 season of playing more concerts on tour than in its home city. A total of 35 cities in 12 states were to be visited by the orchestra between Nov. 8 and March 5, 1946. Most of these cities were in the East and the Middle West. In Indianapolis, a series of 12 pairs of subscription concerts, beginning Nov. 3, were planned with Sir Ernest MacMillan announced as guest conductor in one pair. Other local performances included three children's concerts, a municipal concert, and two appearances with the Indianapolis Symphonic Choir.

KANSAS CITY PHILHARMONIC

A subscription series of 10 pairs of concerts form the backbone of the season for the Kansas City Philharmonic, Efrem Kurtz, conductor, and David Van Vactor, assistant conductor. These concerts take place on Tuesdays and Wednesdays. There also are six popular concerts on Sunday afternoons and two series of children's concerts. Twenty half-hour broadcasts over KMBC and three appearances with the Ballet Theatre round out the season.

ROCHESTER PHILHARMONIC

Guest conductors directed the affairs of the Rochester Philharmonic. Among these were Artur Rodzinski, Leonard Bernstein, Dimitri Mitropoulos, Sir Thomas Beecham, and Guy Fraser Harrison who is the orchestra's assistant conductor. The 12 evening concerts given in Rochester began on Nov. 1, continuing until March 21. There also were 10 concerts planned in other cities with conductorial duties equally divided between Bernstein and Sir Thomas.

THE NATIONAL SYMPHONY

The National Symphony in Washington, D. C. serves the nation's capital with a widely diversified program of activities. Under the baton of Hans Kindler, the orchestra gives 10 subscription concerts on Sundays and 9 all-subscription concerts on Wednesdays. Special features in 1945 included four performances with the Ballet Theatre and four with the Ballet Russe. There were three of the "15/30" series for young people and six for Washington school children with Olga Samaroff-Stokowski as commentator. An innovation was two special concerts for members of the National Symphony Orchestra Association, one of which featured American compositions.

BALTIMORE SYMPHONY

Reginald Stewart is in charge of the musical fortunes of the Baltimore Symphony, with Ilya Skolnik second in command. In the subscription series there are 12 Wednesday evening concerts and two on Thursdays, as well as two series of Sunday evening performances sponsored by the Board of Municipal Music, 12 popular programs, five students' concerts, and three performances with the Ballet Theatre. Out-of-town appearances, in addition to Washington and Annapolis, include a northern tour taking in New York State and several Canadian cities, and a later southern tour extending from Virginia to Florida. There also are four radio concerts on WBAL.

SAN ANTONIO SYMPHONY

Three opera performances ("Carmen," "Tosca" and "La Traviata"), with Metropolitan artists, figured in the 1945 plans of the San Antonio Symphony which recently joined the ranks of major orchestras. Conducted by Max Reiter, the orchestra scheduled 15 subscription concerts, ranging from Nov. 10 to March 20. Sir Thomas Beecham was invited as visiting conductor for one concert.

PITTSBURGH SYMPHONY

Special concert performances of "Salome" and "Boris Godunoff" were highlights of the 1945-46 season of the Pittsburgh Symphony, of which Fritz Reiner is conductor and Vladimir Bakaleinikoff, assistant conductor. The purely orchestral list called for two subscription series of 20 Friday evenings and 20 Sunday afternoons, besides children's concerts in various local high schools, a series of eight popular concerts on Tuesday evenings, conducted by Bakaleinikoff, and featuring well known soloists.

NEW ORLEANS SYMPHONY

With a new conductor in the person of Massimo Freccia, the New Orleans Symphony launched its season on Nov. 13 with the prospect of 14 subscription concerts, one extra concert, and 10 young people's concerts followed by a tour of five cities.

LOUISVILLE AND HOUSTON

The Louisville Philharmonic, Robert Whitney, conductor, began a series of six concerts on Oct. 9 as well as a series of weekly sponsored broadcasts over WAVE. Conducted by Ernst Hoffman, the Houston Symphony planned 10 regular concerts, 10 student concerts and six concerts out of town. It also had weekly sponsored broadcasts.

BUFFALO, DENVER, SEATTLE

The Buffalo Philharmonic, under William Steinberg, offered a series of 10 regular concerts, and, for the first time in its history, sold out completely. It also gave 20 popular concerts on Friday evenings and 11 children's concerts in addition to filling some engagements in surrounding communities. Saul Caston, new conductor of the Denver Symphony, led his forces in 15 concerts beginning Oct. 16. Eight pairs of subscription concerts and four young people's concerts were offered, beginning Nov. 12, by the Seattle Symphony under the baton of Carl Bricken.

NEW MUSIC

A considerable body of new music came to performance during the year though little of it, as was to be expected, showed signs of any lasting importance. Among the most interesting were two works of Villa-Lobos given their first North American performances in New York under the composer's direction. The first was his "Choros" No. 9 for Orchestra played by the Philharmonic Symphony on Feb. 8; the second was "Bachianas Brasilieras" No. 7 with the City Center Symphony on Feb. 13. The Philharmonic Symphony also gave first performances of Paul Creston's Second Symphony on Feb. 15, "Music for Symphony Orchestra" by Arthur Kreutz on March 22, and John Alden Carpenter's "The Seven Ages" on Nov. 29. On the City Center list besides were Revueltas' "Sensemaya," Fuleihan's Concerto for Theremin and orchestra, and Phillips Scherzo, on Feb. 26. Also in New York, the National Orchestral Association, conducted by Leon Barzin, presented Ernst Levy's Ninth Symphony for orchestra and mixed chorus on March 3.

The St. Louis Symphony was responsible for first readings of Morton Gould's "Harvest" on Oct. 27; Alexander Tansman's Serenade No. 3 on Nov. 10; and the "Circus Polka" from Stravinsky's "Four Norwegian Moods" on Nov. 16. Bohuslav Martinu was represented by his Third Symphony, played by the Boston Symphony on Oct. 12, and by his Fourth Symphony undertaken by the Philadelphia Orchestra on Nov. 30. The Philadelphians also brought out Paul Creston's Pastorale and Tarantella on Jan. 12; Nicolai Berezowsky's Concerto for Harp and Orchestra on Jan. 26; while the Bostonians gave a first American hearing to Prokofieff's Fifth Symphony on Nov. 9.

Celebrating its 20th anniversary, the Eastman School Festival of American Music, at Rochester, introduced several new works under the direction of Howard Hanson. Among these were Leo Sowerby's Sonata for violin and piano, Herbert Inch's Second Quartet, Paul White's "Idyl," William Grant Still's ballet suite, and "Sahdji," Robert Sander's Violin Concerto.

Normand Lockwood's opera, "The Scarecrow," was a high point among new works introduced at Columbia University's Festival of American Music on May 9, which also brought out Paul Creston's Second Symphony (previous to the Philharmonic's public premiere), David Diamond's "Rounds," a saxophone concerto by Henry Brandt, and several chamber works.

THE THEATRE

By Edwin T. Duffy

News Department, *The New York Times*

WAR AND THE STAGE

The Second World War had come to a victorious close for the Allies by August of 1945, but even with the end of hostilities the Broadway theatrical scene had undergone no drastic alteration. Grosses at the box-offices of New York's legitimate theatres continued phenomenal, and operetta presentations and musical comedy continued to be the order of the day. Among the effects of the war's end was the speedy demise of the American Theatre Wing's Stage Door Canteen and a prediction that similar organizations throughout the land would rapidly follow suit. Paradoxically, USO Camp Shows, Inc. announced an expanded program of overseas entertainment for the Allied forces stationed in occupied Germany and Japan. For more than three years, the USO had been busy filling the entertainment needs of the uniformed men and women of the United Nations throughout the world with a wide variety of dramatic fare. As might be imagined, the actors and actresses who consented to make the tour did so in the face of the most difficult transportation conditions and very often appeared under the most hazardous circumstances. With the war at an end, however, a rapid improvement in accommodations for the USO troupers seemed inevitable.

In the closing months of the conflict, what appeared to be a veritable exodus from Hollywood to the New York stage took place. Such screen personalities as Spencer Tracy, Fay Bainter, Edmund Gwenn, and Frances Dee turned up during the course of the season, and at the time this volume went to press many other notables had made known their intention to make a return to the footlights. This, in itself, was a direct result of the war years in America. Many film players were aware that former film patrons were attending the theatre in steadily increasing numbers. Thus, in order to reinforce their position on the screen, they were more than willing to make the trek to New York and give their fans the opportunity of seeing them at work on the stage. The season was further enriched by the return of such players as Laurette Taylor, Dame May Whitty, Carol Goodner, and Catharine Willard among others, all of whom had not been seen in New York for too long a time.

All in all, the theatre continued at about the same rate as in previous years. The great play to emerge from the war still had not materialized, though Paul Osborn's adaptation of the John Hersey novel, *A Bell for Adano,* had gained a comfortable run when the closing notice went up backstage. In the main, the theatre had to content itself, as far as the actual physical war was concerned, with Hersey's study of the Italian situation, a direct holdover from 1944, and a handful of minor war dramas, only one of which managed to attain a fair degree of popularity.

WAR AND RELATED THEMES

John Patrick's "The Hasty Heart" was well received by the press but failed to live up to its early expectations. The play was a human and frequently touching account of a handful of Allied soldiers stationed in Burma and of the entrance into their midst of a surly Scotsman with only a few months to live and deadbent against affection of any sort. How he is finally won over by a British nurse and an American soldier formed the basis of the play which was embellished with a trio of excellent performances from John Lund as the Yank, Anne Burr as the nurse, and Richard Basehart as the representative of the play's title. "The Hasty Heart" lasted a little more than 200 performances and has now begun what appears to be a successful engagement in London.

Two other plays attempted to present a study of the war in relation to the civilian population, those being Edward Chodorov's "Common Ground" and Capt. Ralph Nelson's "The Wind Is Ninety." The former was a drama in which a group of USO entertainers found themselves trapped by the Germans in Italy and the latter a study of the effect of the death of a serviceman on his immediate family. Luther Adler, Paul McGrath, and Nancy Noland enacted the leads in the Chodorov play with notable success, and Bert Lytell and Blanche Yurka gave good accounts of themselves in Captain Nelson's drama. "Common Ground," however, went down to early failure, and "The Wind Is Ninety" was able to stay around only for a slack summer period.

THE POST-WAR THEME

While plays dealing directly with the war were as scarce as four-leaf clovers, three productions slipped quietly into town during the year which, although faulty, definitely displayed an interest in problems facing the post-war world. The first was "Kiss Them for Me," a comedy-drama by Luther Davis stemming from the Frederic Wakeman novel, *Shore Leave.* This was an earnest little play about three Navy men returned to their native shores for a brief respite from duty. Anxious to find fun and relaxation, they run into governmental red tape, the much-maligned "Paper Navy," and a general lack of understanding on the part of the civilian population. Davis' play showed the germ of a good idea but the development was weak and the entire play rapidly fell to pieces. Elsa Shelly's "Foxhole in the Parlor" was a straight drama in which a returned pyscho-neurotic soldier was the principal character. This play was more determined but not so well written, and it lacked the necessary depth and understanding to create a favorable impression. Both "Kiss Them for Me" and "Foxhole in the Parlor" failed to build sufficient box-office strength but both were a proof that the theatre was attempting to settle down to facts.

Third, and by far the best, was "Home of the Brave," which was, incidentally, the last legitimate production of the year. An all-male cast of actors, headed by Joseph Pevney and Alan Baxter, enacted this story of a Jewish soldier's fight against intolerance. The play received divided notices, the opinion being that Laurents had made a commendable, if not entirely satisfactory, effort to get at the heart of a truly serious problem.

"DEEP ARE THE ROOTS"

It was not until almost the end of September that the theatre had a serious play based on a current problem of which it could be justifiably proud. "Deep Are the Roots," a fiery drama from the pens of Arnaud D'Usseau and James Gow, had a good deal to say about racial intolerance and pulled no punches saying it. The authors told of the return of a young Negro war hero to his home in the deep South. He has been treated as an equal abroad but finds he is expected to resume his former position of subservience in the land of his birth. The boy's liberal views are bitterly opposed by an aging Southern senator and championed with equal vigor by a crusading novelist from "Up North." The conflict is resolved when the senator attempts to frame the boy on a charge of theft. The drama receives additional power through the complex role of the senator's elder daughter, who had been the colored boy's friend and patron in earlier days but who permits the youth to be taken away to jail without offering opposition. What happened afterwards was sufficient to make "Deep Are the Roots" not only an intelligent play but also an extremely entertaining one. It was produced by Kermit Bloomgarden and George Heller and was admirably staged by Elia Kazan. Carol Goodner as the misguided liberal gave a splendid performance in what was one of the most demanding roles of the season, and Gordon Heath's portrayal of the Negro soldier was fine and dignified. Charles Waldron as the senator, Barbara Bel Geddes as the younger daughter, and Lloyd Gough as the novelist contributed excellent performances in the supporting roles. This was the first work of major consequence to deal with a pertinent issue in entirely satisfactory fashion. The success it is still enjoying at the box-office attests to its merits as a fine play.

"THE GLASS MENAGERIE"

On a warm Saturday evening toward the end of March, 1945, New York's first-nighters congregated for the first local inspection of "The Glass Menagerie," a drama by Tennessee Williams, a comparatively unknown author. The play, the writer's first to receive a New York production, had excited editorial and critical comment in Chicago and had already made a reputation for itself before embarking upon its Broadway career. Williams' study of despair and frustration in a St. Louis flat became an overnight hit after receiving the unanimous approval of the local drama reviewers. Specifically, it dealt with a faded Southern belle; her son, a disillusioned dreamer, and her daughter, a pathetic cripple hiding from the world of reality in a collection of tiny glass figurines from which the play derived its title. The action of the play revolved around the efforts of the mother to entice a gentleman caller into paying a visit to their home in the hope that her daughter might find a suitor and escape from her unpleasant situation.

This portrait of four unhappy people was a touching one but it was relieved by many moments of high comedy. As a picture of one phase of life in the American scene, it was pretty near perfection, and a small cast of four gave expert characterizations. Julie Haydon as the daughter, Eddie Dowling as the son, and Anthony Ross as the gentleman caller were all fine. The majority of playgoers and critics felt, however, that the play's most rewarding feature was that it brought Laurette Taylor back to the theatrical scene. Miss Taylor brought great feeling to the difficult role of the mother, a part which might very easily have deteriorated into a maudlin character study in the hands of a less experienced actress. The play was produced by Eddie Dowling in association with Louis J. Singer and Jo Meilziner and provided one of the most unusual stage settings of the season. At the close of the year, "The Glass Menagerie" still was playing to capacity houses at every performance.

"THE RUGGED PATH" AND "DARK OF THE MOON"

The theatrical year was marked by the return of a favorite playwright and a favorite actor. The scribe was Robert E. Sherwood with his first play since "There Shall Be No Night," and the actor was Spencer Tracy, last seen in New York in "The Last Mile" some 15 years ago. The occasion was The Playwrights' Company presentation of "The Rugged Path." Sherwood's latest play told the story of an American newspaperman who attempted to renew his faith in America by surrendering his post on a Washington daily and seeing action in the Philippines. "The Rugged Path" had one or two moments of effective theatre but too much of the play resembled an address delivered from a lecture platform. Critical response to the play was slight despite Tracy's superior job of acting. Capt. Garson Kanin directed, and an able cast headed by Martha Sleeper supported the star. The production was scheduled to end its run early in 1946.

"Dark of the Moon" was a fairly imaginative treatment of the Barbara Allen-Witch Boy legend in which a boy from the nether world falls in love with a mortal girl. The vehicle, sub-titled a "legend with music," was written by Howard Richardson and William Berney, and the Shuberts were responsible for a striking production. The critics were divided once again on the merits of the play, and, although box-office returns were far from satisfactory, it had achieved a run of several months when it was withdrawn.

COMEDIES

After a series of fumbles, the theatre finally was rewarded with three expert comedies. Howard Lindsay and Russell Crouse, who have demonstrated in the past that they know their way around a clever situation, wrote "State of the Union," a political comedy with deep social overtones. It arrived in New York after a highly successful shakedown tour out-of-town, and soon became one of Broadway's chief light attractions of the year. Delving into a region hitherto unexplored by the authors, "State of the Union" was concerned with a man selected by the Republican Party as its torch-bearer in the 1948 presidential campaign. Beset by conniving politicians and an opportunistic female publisher, Grant Matthews, as he was called, succeeded in steering a clear path through his basic honesty and the intelligent thinking of his loyal but neglected wife, Mary. Producer Leland Hayward and the Messrs. Lindsay and Crouse called upon an imposing cast to enact the leading roles. Ralph Bellamy and Ruth Hussey, both of the film capital, appeared as Matthews and Mary, respectively and both performances brought about the highest critical praise. In the supporting cast, Minor Watson as a shrewd politician, Myron McCormick as a high-pressure publicity man, and Kay Johnson as the other woman, were right in line with the fine performances of the stars.

The play was directed by Bretaigne Windust and was high up on the list of favored plays by Dec. 31, 1945.

Hard on the heels of "State of the Union" came Elmer Rice's bright imaginative comedy "Dream Girl." This represented the famous playwright in a far lighter vein than anything he had done in several years, and was an instant favorite with both press and public. Spinning around an unhappy young lady of 23 who is dissatisfied with a humdrum existence as proprietress of a bookstore, the play presented a series of dreams undergone by the heroine in a 24-hour period and which finally culminates in her finding romance and happiness. Produced by The Playwrights Company and staged by the author, "Dream Girl" provided Betty Field with her most important role in the theatre to date. Miss Field, always a good actress, gave a bright and sparkling performance and was well supported by Wendell Corey as boyfriend and Evelyn Varden as her mother.

Tennessee Williams, author of "The Glass Menagerie," collaborated with Donald Windham in penning "You Touched Me!" a pleasant, if somewhat minor, romantic comedy. The new work was not as well received as the former, but taken with certain reservations, "You Touched Me!" gave the season a much-needed lift. In telling the story of a rum-sodden old sea captain who conspired to free his daughter from a life of frustration, Williams and Windham wisely called upon the services of Edmund Gwenn who, in the pivotal role of the marooned mariner, gave one of the best performances in a long and honorable career. As his acid-tongued sister, Catherine Willard sparked the comedy with many of its best moments. Montgomery Clift was good as the juvenile, though Marianne Stewart suffered from having been wretchedly miscast as the captain's daughter.

William McCleery's "Hope for the Best" was a talkative but frequently amusing vehicle for the starring talents of Franchot Tone and Jane Wyatt. Philip Barry, under the banner of the Theater Guild, contributed "Foolish Notion," which gave Tallulah Bankhead one of her less amusing comedy jaunts. Vincent Lawrence submitted "The Overtons," a thin domestic comedy with Arlene Francis and Jack Whiting in the leading roles.

S. N. Behrman and John Van Druten, two of comedy's leading craftsmen, were both active this season. Behrman wrote "Dunnigan's Daughter," which the Theatre Guild produced with June Havoc, Luther Adler, and Dennis King in the top roles. Van Druten, who had both "The Voice of the Turtle" and "I Remember Mama" still playing to packed houses, sent along "The Mermaids Singing." Reaction to both plays was hardly favorable, the majority of the critics feeling that both gentlemen were resting on their laurels. Both attractions, however, were still running at the end of the year.

MUSICALS

Enthusiasts of the musical comedy found themselves with a slim list to choose from during 1945. Old-time favorites like "Oklahoma!," "On the Town," and "Song of Norway" still were delighting the playgoing public, but while the year produced a wide selection of musicals, there were relatively few that won critical bravos. The Theatre Guild, sponsors of "Oklahoma!," turned its attention to Ferenc Molnar's "Liliom" and converted it into a charming musical titled "Carousel." Comparison was inevitable, as Oscar Hammerstein II, Richard Rodgers, and Agnes de Mille, who had brought about "Oklahoma!," had all lent their talents to "Carousel." The comparison proved highly favorable. Rodgers and Hammerstein once again were in charge of the book and lyrics; and Miss de Mille once more fashioned the ballets. With a company headed by Jan Clayton and John Raitt, "Carousel" became an immediate hit and was the top new musical in New York at the end of the year.

In the field of pure musical comedy, the Richard Kollmar-James Gardiner production of "Are You With It?" won hands down. Concerned with the plight of a statisician whose career was jeopardized by a misplaced decimal point, "Are You With It?" took that unhappy young man into the rank and file of a traveling carnival show where he found love, happiness, and an abundance of pleasant music. Edward Reveaux's direction embraced a cast headed by Johnny Downs, Joan Roberts, Lew Parker, and Dolores Gray. The book was written by Sam Perrin and George Balzer and was adapted from the George Malcolm-Smith novel, *Slightly Perfect*.

Paul Feigay and Oliver Smith, remembered for 1944's refreshing "On the Town," came together again this season. The finished product was a musical comedy of the Roaring Twenties, "Billion Dollar Baby," with Joan McCracken and Mitzi Green in the leads. John C. Wilson, impresario of "Bloomer Girl," staged "The Day before Spring," which contained a book by Alan Jay Lerner with John Archer and Irene Manning, of the film capital, as the stars. Neither "Billion Dollar Baby" nor "The Day before Spring" won completely favorable notices, but both musicals were expecting moderately successful runs.

The year's other musical attractions did not fare so well. Two modern adaptations of the Gilbert and Sullivan operetta "H.M.S. Pinafore" were both running for a time in two different theatres. "Memphis Bound" was an all-Negro version of the classic prepared by Albert Barker and Sally Benson. The second, called "Hollywood Pinafore," was the work of George S. Kaufman. "Memphis Bound" had Bill Robinson and Avon Long as its featured performers, while "Hollywood Pinafore" boasted the celebrated team of Victor Moore and William Gaxton. Both were lavish productions which held much initial promise, but the tides of fortune were against them, and "Memphis Bound" and "Hollywood Pinafore" closed after short engagements.

For the rest, the season brought forth "Carib Song," another all-Negro entertainment featuring Katherine Dunham and her troupe; "The Girl From Nantucket," a costly fiasco produced by Henry Adrian and featuring Jane Kean and Jack Durant; "The Firebrand of Florence," a musical play by Edwin Justus Mayer and Ira Gershwin, with Melville Cooper; and Clayton Ashley's "A Lady Says Yes" with film star, Carole Landis, in the top role.

OPERETTA

The operetta season was one of the more unrewarding features of the year's legitimate activities. The trend, generally, was toward a rather weird mixture of history and music, most of the authors being not too expert on the former. The life and times of Poland's Kosciusko formed the background of "Polonaise," which brought Jan Kiepura and Marta Eggerth back to Broadway after a successful stint in "The Merry Widow." This contained a score by no less a personage than Frederic Chopin, and, while critical response was not enthusiastic, the production managed to eke out a run of more than 100 performances. The tragedy at Mayerling, in which the colorful Archduke Rudolph of Hapsburg and Marie Vetsera were the principal figures, was turned into an elaborate musical show under the title of "Marinka." Joan Roberts and Harry Stockwell played the historic roles, and Romo Vincent and Luba Malina headed the supporting cast. "Marinka," too, was not a favorite with the press but, like "Polonaise," was able to get safely past the 100-mark before closing. The third operetta of the season was "Mr. Strauss Goes to Boston," which purported to show what happened when the Waltz King made a pilgrimage to these shores in the late 1880's. Virginia MacWatters in the chief singing and acting role waltzed away with whatever honors were to be found in the piece, but Strauss' visit to Boston was curtailed by an early closing.

VAUDEVILLE

Vaudeville remained the forgotten art during 1945, despite two attempts at resuscitation. The first was a minor variety show labeled "Blue Holiday." Presented by Irvin Shapiro and Doris Cole, with Ethel Waters as its stellar attraction, the offering closed after a few performances. Billy Rose was responsible for "Concert Varieties," an elaborate welding of various performers in the vaudeville and concert fields. Although the cast had such headliners as Katherine Dunham and her dancers, Zero Mostel and Rosario and Antonio, the show failed to win support and closed after a four-week stay.

REVIVALS

The theatre played host throughout the year to a flock of excellent revivals. Topping the list was the Michael Todd production of Shakespeare's "Hamlet" which brought Maurice Evans back to New York in his version of the classic with which he had entertained servicemen abroad. Evans' performance in the title role was a somewhat different interpretation than that usually given to Shakespeare's melancholy Dane, but one which was well received by the critics. The production was well directed and handsomely staged with Lili Darvas, Frances Reid, and Thomas Gomez supporting the star.

Hunt Stromberg, Jr. and Paul Stone were responsible for the revival of "The Red Mill," that favorite of a by-gone era. The musical opened with a minimum of fanfare and rapidly became one of the town's most sought-after attractions. Although some parts of the book had been touched up in spots, most of "The Red Mill" remained as it was originally played back in 1906. This meant, too, that Victor Herbert's appealing musical score had been allowed to remain intact. The cast was peopled with such personalities as the screen's Michael O'Shea, Dorothy Stone, and Eddie Foy, Jr., the latter running away with most of the critics' pet adjectives. Response at the box-office tills was so great that "The Red Mill," though planned originally as an eight-week affair, was confident of running well into 1946.

George Bernard Shaw's "Pygmalion," the story of a professor of phonetics and a guttersnipe transformed into a great lady, also was successfully revived. As produced by Theatre Inc., the celebrated comedy boasted the services of Gertrude Lawrence, Raymond Massey, and Melville Cooper in the leading roles, and was directed by Sir Cedric Hardwicke. Following the trend of the year's other revivals, "Pygmalion," too, was a favorite with the critics and with the paying customer.

Margaret Webster's interpretation of Shakespeare's "The Tempest" was yet another classic to provide theatregoers with a highly satisfactory evening. Always a difficult play to stage and never regarded as the Bard's most popular piece of writing, "The Tempest," as produced by Cheryl Crawford, chalked up an engagement of 100 performances, the longest run in the play's history. Vera Zorina and Canada Lee were selected for the roles of Ariel and Caliban, respectively. Combined with Arnold Moss, they gave an excellent reading of the principal roles.

Revivals also held sway in the precincts of the New York City Center of Music and Drama. During the course of the year, five legitimate attractions appeared at the house. "You Can't Take It with You," with Fred Stone appearing in the leading role of the George S. Kaufman-Moss Hart comedy, headed the list. Then came the Billy Rose all-Negro version of "Carmen Jones," followed by the Margaret Webster productions of "Othello" and "The Tempest," both of which had successful Broadway runs at earlier dates. As its final dramatic attraction for the year, the Center brought forth its annual Christmas presentation of "Little Women," dramatized by Marian de Forest from the Louisa May Alcott novel.

MELODRAMAS

With the departure of "Angel Street," the theatre found itself waiting for another good blood-and-thunder melodrama. It waited in vain, for the theatrical season produced a string of curiously undistinguished melodramatic offerings. Thomas Job, Author of the exciting "Uncle Harry" of a few years back, wrote "Therese," an adaptation of the Emile Zola novel, *Therese Racquin.* This had Eve Le Gallienne, Victor Jory, and Dame May Whitty, in addition to the directorial services of Margaret Webster. The three stars worked hard, but the play, a study of lust, murder, and revenge, failed them. It closed on the final night of the year after 96 showings.

Fay Bainter returned to the stage after an absence of almost a dozen years in a play by Mary Chase, author of last year's "Harvey." "The Next-Half Hour," as it was called, bore all the worst features of an author's earlier work and suffered accordingly at the hands of the critics. Miss Bainter's performance as a superstitious Irish mother was a good one, but the play was withdrawn after eight performances.

Robert Turney's "The Secret Room" was a fairly exciting melodrama in which an insane refugee pianist finds refuge in the home of an American doctor and his family. Elenora Mendelssohn, in the role of the villainess, walked away with the play's acting honors, and Frances Dee of the cinema made her Broadway stage debut herein. Edmund Goulding's "The Ryan Girl" was a routine penny-dreadful which ran for a while thanks to the drawing power of Edmund Lowe and June Havoc who were its stars.

The remainder of the year's sinister theatrical items included such mishaps as Irwin Shaw's "The Assassin"; Elizabeth MacFadden's "Signature!"; "A Boy Who Lived Twice" by Leslie Floyd Egbert and Gertrude Ogden Tubby; and "Rebecca" by Daphne du Maurier, this being a stage version of the successful novel with Diana Barrymore and Florence Reed appearing as the harried mistress and malevolent housekeeper of Manderley, respectively.

MISCELLANEOUS SHOWS

No theatrical year would be complete without the customary crop of miscellaneous offerings. Some of them lingered for a bit, but the majority made a quick and well-deserved detour to the storehouse. Among the fiascos of the season, there were such varied products as "One-Man Show" by Ruth Goodman and Augustus Goetz with Constance Cummings and Frank Conroy; "A Goose For the Gander" by Harold J. Kennedy with Conrad Nagel and Gloria Swanson; "Happily Ever After," by Donald Kirkley and Howard Burman, with Gene and Kathleen Lockhart; "Many Happy Returns" by Clare Kummer with Neil Hamilton and Mary Astor; "Oh, Brother!," by Jacques Deval with Hugh Herbert and Arlene Whelan; "Calico Wedding" by Sheridan Gibney, with Grete Mosheim and William Post, Jr.; "It's A Gift" by Curt Goetz and Dorian Otvos with Goetz and Valerie Van Martens; "Lady In Danger" by Max Afford and Alexander Kirkland, with Clarence Derwent and Vickie Cummings; "Beggars Are Coming to Town" by Theodore Reeves, with Paul Kelley and Dorothy Comingore; "The Stranger" by Leslie Reade, with Eduard Franz and Eugene Sigaloff; "A Place of Our Own" by Elliot Nugent, with his father, J. C. Nugent in the leading role; "A Sound of Hunting" by Harry Brown, with Sam Levene in the lead; and "Brighten the Corner," by John Cecil Holm, with Lenore Lonergan and Charles Butterworth. George Kelly dashed off "The Deep Mrs. Sykes" after a long absence from the theatre but this, too, was a failure despite the presence of Catherine Willard and Jean Dixon in the cast.

CENSORSHIP

License Commissioner Paul Moss again made theatrical news in 1945 when he ordered the closing of the controversial Howard and Dorothy Baker play "Trio." The drama was forced to end its engagement at the Belasco Theatre when Commissioner Moss refused to renew the license of the playhouse as long as the drama remained there. "Trio," which dealt with the abnormal relations of a middle-aged female French professor and her young protegee, was said to have aroused the ire of several religious organizations. The Commissioner's action was followed by a storm of protest from theatrical groups which branded the move as a "misuse of a city official's power." When Mayor La Guardia sanctioned the Commissioner's action, Playwright Elmer Rice resigned from the board of the New York City Center of Music and Drama, of which Moss was a member. "Trio," which stemmed from Miss Baker's novel of the same name, opened in New York on Dec. 29, 1944, with a cast headed by Lydia St. Clair, a continental star, and Richard Widmark. Produced by Lee Sabinson and directed by Bretaigne Windust, it had been performed 67 times when it was forced to withdraw. "Trio," like "The Captive," had become another cause celebre.

MOTION PICTURES

By Thomas M. Pryor

Motion Picture Department, *The New York Times*

GENERAL

Except for the happy jingle at the box-office, the year 1945 presented the motion picture industry with a succession of unhappy developments. Labor strife sent picture budgets soaring and indirectly contributed to the noticeable decline in both the quality and quantity of films produced; the Government reopened its seven-year old anti-trust suit to divest the major producing and distributing companies of their theatre holdings; and, in general, the coming of peace served only to remind Hollywood that its day of uncontested leadership in the world's film markets was rapidly drawing to a close. Even the box-office at home showed signs of dropping off from the dizzy heights reached in the last two war years, though as the year ended the descent had not yet reached alarming proportions.

The shifting of populations from industrial war boom sections was responsible for a sharp decline in picture receipts in certain areas, but more significant was the fact that this all-important barometer fluctuated even in large cities like New York, which did not lose any appreciable number of residents because of closing war plants. This was taken by the wiser minds in the industry as an indication that the public is gradually losing its "anything-goes" attitude of the past four years and now is starting once again to shop around for movie entertainment.

During the past 12 months the number of really good pictures was considerably below the standard of the two previous years. The reason for this decline is not easy to detect, though most of the pictures which failed to impress showed evidence of having been thoughtlessly assembled. Perhaps the film makers, like everyone else, were too intent upon following the climactic phases of the Second World War to achieve that degree of thoughtful craftsmanship necessary to lift a picture from the "good" into the "excellent" category.

Generally the producers attempted to avoid serious subjects. The slogan appeared to be "escapism and laughs for the public," yet there were a few distinguished offerings such as "The Story of G. I. Joe," "Spellbound," "The Lost Weekend" and "A Tree Grows in Brooklyn." Several pictures contained heartening evidence of a rational approach to life. This was achieved chiefly through use of the documentary technique in story presentation, two notable instances being "The Story of G. I. Joe" and "The House on Ninety-second Street."

THE TEN BEST PICTURES

Significantly both these films found a place among the year's Ten Best. As selected by *The New York Times* the choice ten were:

"A Tree Grows in Brooklyn," written by the late Tess Slesinger and Frank Davis from the novel by Betty Smith, directed by Elia Kazan, and produced by Twentieth Century-Fox. A deeply human and understanding story of a sensitive child of the slums and of her tender relations with her parents, played beautifully by Peggy Ann Garner, James Dunn, and Dorothy McGuire.

"The Way Ahead," written by Eric Ambler and Peter Ustinov, directed by Carol Reed, and produced in England by Two Cities. A crisp and meaningful history of a squad of British Army infantrymen, from the time they enter training until they go forth on their final assault in North Africa. David Niven, Raymond Huntley, and Billy Hartnell were distinguished in the cast.

"Anchors Aweigh," written by Isobel Lennart from a story by Natalie Marcin, directed by George Sidney, and produced by Joe Pasternak for Metro-Goldwyn-Mayer. A truly gay and inventive musical—the only genuinely "escapist" picture in this lot—in which the elements of light screen entertainment were artfully and tastefully combined. Gene Kelly, Frank Sinatra, Kathryn Grayson, and José Iturbi shone.

"Pride of the Marines," written by Albert Maltz and Marvin Borowsky from a report by Roger Butterfield, directed by Delmar Daves, and produced by Jerry Wald for Warner Brothers. The story of Sgt. Al Schmid, a blinded hero of Guadalcanal, impressively re-enacted in a straight realistic style by John Garfield, Dane Clark, Eleanor Parker, and a generally excellent cast.

"The House on Ninety-second Street," written by Charles G. Booth, Barre Lyndon, and John Monks Jr., directed by Henry Hathaway, and produced by Louis de Rochemont for Twentieth Century-Fox. An intriguing and exciting real-life drama of the Federal Bureau of Investigation's war on Nazi spies, based on FBI records and played convincingly by Lloyd Nolan, William Eythe, Gene Lockhart, and Leo G. Carroll.

"Story of G. I. Joe," written by Leopold Atlas, Guy Endore, and Philip Stevenson, based on the war reports of Ernie Pyle, directed by William A. Wellman, and produced by Lester Cowan. The personalized story of a group of American Army infantrymen, filmed with humor and poignancy and angled in a strictly subjective vein. Freddie Steele, Robert Mitchum, and Burgess Meredith headed the excellent cast.

"Spellbound," written by Ben Hecht from a novel by Francis Beeding, directed by Alfred Hitchcock, and produced by David O. Selznick. A free but fascinating account of a lady psychiatrist's success in delving into the mind of an amnesiac and proving him innocent of suspected homicide. Done with fine suspense and romantic illusion, and played expertly by Ingrid Bergman, Gregory Peck, Michael Chekov, and others.

"The Last Chance," written by Richard Schweizer, directed by Leopold Lindtberg, and produced in Switzerland by Lazar Wechsler. A strikingly realistic picture of a foot journey over the Alps by an American and a British prisoner of war and a group of refugees fleeing from Italy to Switzerland. Notable in a cast of impressive performers, some of them amateurs, should be cited Sgt. Penrose Reagan and John Hoy.

"The Lost Weekend," written by Charles Brackett and Billy Wilder, from the novel by Charles R. Jackson, directed by Wilder and produced by Brackett for Paramount. An unmercifully candid, shocking, and deeply poignant study of a dipsomaniac, done in the best and truest style of cinema realism. Ray Milland rates top honors for a shattering performance in the principal role, with mention also deserved by Howard da Silva, Jane Wyman, and Frank Faylen.

"They Were Expendable," written by Frank Wead from the report by

William L. White, directed by John Ford for Metro-Goldwyn-Mayer. An exciting and nostalgic story of Navy men who fought in the tiny PT-boats in the rearguard action around the Philippines in the first months of the war. Played stoutly and with plenty of rugged sentiment by Robert Montgomery, John Wayne, Ward Bond, Donna Reed, and a solid cast.

WAR THEMES

In factually reporting the war, both in Europe and the Pacific, the Army and the Navy, working in a few instances hand-in-glove with Hollywood film studios, contributed several magnificent and significant movies. Outstanding were "The True Glory," the Anglo-American account of the British and United States armies, campaign in western Europe, and "The Fighting Lady," a furiously realistic account of carrier warfare in the Pacific. The latter was edited by Louis de Rochemont, the Twentieth Century-Fox producer, from battle footage photographed by Navy camera crews. The services also broke into commercial theatres on a large scale with several thrilling short subjects, notably the taking of Iwo Jima.

NEWSREELS

The newsreels, taking material photographed by the Army Signal Corps, turned out some of the most shocking and revealing accounts of Nazi barbarism in the prisoner-of-war and concentration camps in Europe, and the wanton devastation of the Philippines by the rampaging Japanese forces. A few squeamish theatre owners either refused to exhibit these newsreels or censored them unmercifully, explaining that they did not want to risk offending the sensibilities of patrons. However, public interest in these important newsreels was unusually keen, and it is said that many citizens who had up to then looked suspiciously upon tales of Nazi barbarism as propaganda came away firmly convinced that the Nazis' brutality had not been overstated.

STUDIO STRIKES

For the first time in almost a decade the motion picture studios were involved in violent and prolonged labor strikes. This time the studios were in the middle, as the dispute arose over a jurisdictional struggle between two American Federation of Labor Unions, the Conference of Studio Unions, and the International Alliance of Theatrical Stage Employees, to gain control of the independent set designers' union with a membership of 77. The strike of set designers started in March, and several times during its duration of eight months there were threats of a general strike throughout the industry. The strike finally ended in October after several days of violence, mostly at the Warner Brothers studios, when the Painters Union won a bargaining election.

It was unofficially estimated by studio representatives that the strike cost the producing companies more than $5,000,000 in time lost. Moreover, it was alleged that the strike was partly responsible both for the reduction in the total of pictures made in 1945 and the off-quality of most of the product. Several big pictures planned for production in 1945 were postponed because of difficulties in set construction and the uncertainty as to whether a picture once started could be finished. Producers rushed pictures to completion in the fastest possible time, according to report, though, in fairness, it must be noted that there was no way of checking this with any degree of accuracy. Production figures for 1945 totaled 350 features as against 432 the previous year, 397 in 1943, and 518 in 1942.

PRODUCTION FACTORS

Another factor which contributed to the reduced production schedules was the large backlogs of completed pictures accumulated at most studios owing to the exceptionally long-runs many pictures enjoyed at first-run theatres. It is estimated that Hollywood entered upon 1946 with a reserve of completed and unreleased pictures representing an investment of $125,000,000. Indications are that production schedules will increase sharply in 1946, as several of the major companies have announced plans to resume the production of "B" pictures to keep the double-bill houses going.

EMERGENCE OF NEW STARS

Little new talent came to the fore in the past 12 months, but several players who had been doing bit or small featured roles for the last few years suddenly emerged as stars in 1945. Among the most promising were Gregory Peck, Cornel Wilde, Dane Clark, Phyllis Thaxter, June Allyson, Yvonne De Carlo, Lucille Bremmer, Robert Mitchum, Freddie Steele; and, in the younger age brackets, Peggy Ann Garner, Stanley Clements, and Conrad Janis. Two old favorites, Joan Crawford and James Dunn, returned to the screen amid well-earned acclaim. In a way the year's biggest surprise was the metamorphosis of Dick Powell from a crooner into a Bogart-type tough. Powell demonstrated unsuspected acting talents by his performances in "Murder, My Sweet" and "Cornered."

FILM FAVORITES

With two exceptions, it was the seasoned performers who once again took honors as the ten top money-making stars of 1945 in the poll conducted by the trade journal, *Motion Picture Herald,* among the nation's theatre owners. The top ten, in order of votes received, were Bing Crosby, Van Johnson, Greer Garson, Betty Grable, Spencer Tracy, Humphrey Bogart, and Gary Cooper (the only ones who tied since the poll was first taken 14 years ago), Bob Hope, Judy Garland, Margaret O'Brien, and Roy Rogers. The newcomers are Van Johnson, whose popularity among the "bobby-sox" set was the talk of 1945; diminutive Margaret O'Brien and Rogers, the cowboy king. Rogers is the third Western star to be placed among the top ten stars, that honor having previously been held by the late Will Rogers and Gene Autry. Roy Rogers, in the poll to determine the top ten in the Western Division, took first place. The other nine, according to votes received, were George (Gabby) Hayes, William Boyd, Bill Elliott, Smiley Burnette, Johnny Mack Brown, Charles Starrett, Red Barry, Tex Ritter, and Rod Cameron.

NEW LEADERSHIP IN THE FILM INDUSTRY

The most important inter-industry development of the year was the resignation in October of Will H. Hays as president of the Motion Picture Producers and Distributors of America, Inc., which he had headed since its formation 23 years ago. Hays was succeeded by Eric A. Johnston, president of the United States Chamber of Commerce, who has set about reorganizing the producers organization. His first step in this direction was the consolidation of the New York and Hollywood branches of the MPPDA under a new corporate identity, to wit, The Motion Picture Association of America, Inc. Byron Price, former Associated Press executive and wartime Director of Censorship, joined the new MPAA as a vice-president and will direct the organization's affairs on the West Coast.

Still another important personage from the business world who became affiliated with the movie industry in 1945 was Donald M. Nelson, the former War Production Board director, who accepted the presidency of the Society of Independent Motion Picture Producers.

FOREIGN MARKETS

In its initial bid to recapture foreign markets lost during the war years, the American motion picture industry encountered actual and potential threats to its economic future abroad. No new American films have been sent to France since that country's liberation as a direct result of the new government's attempts drastically to cut import licenses for Hollywood pictures. The French industry, which prospered under Nazi occupation, is jealous of the gains it made and does not like the idea of renewed large scale competition from American films.

Under the Franco-American trade pact of 1936, American films were guaranteed a minimum of 150 of the 180 import licenses granted annually to foreign films. Since this agreement was never formally denounced by either country, the American industry has refused to accept the new regulations which would limit Hollywood films to about 60 per year. Moreover, the French propose stringent new taxes, including a special tax of 50 per cent on earnings remitted to the United States. This tax is used to subsidize the export of French movies.

Several other countries also proposed measures that would severly restrict the circulation of American films, but this situation is in a state of flux, and there is no telling from day-to-day just what the circumstances may be. However, the American industry is most seriously concerned over the hostility expressed on the British radio and in the press against American films. Hollywood's films were severly criticized and derided following V-E Day, and as 1945 drew to a close, there were hot debates in Parliament on the subject of American film earnings.

British film producers, most of whom are financed by the sprawling movie interests of J. Arthur Rank, the millionaire flour miller, are bent on crashing the American market on an enlarged scale. Rank spearheaded this movement in 1945 by the formation of two new distribution companies of Anglo-American complexion and by making producing-releasing deals with Hollywood producers. He formed the United World Pictures Company in association with Universal Pictures Corporation and International Pictures, an independent firm owned by Leo Spitz and William Goetz, and Rank also joined forces with Pathe Industries here for the creation of a second distribution-production firm, Eagle Lion Films. Moreover, he made a deal with David O. Selznick for the production of pictures in England and a similar arrangement with RKO Radio Pictures. In addition, Rank has deals pending with several independent American producing firms, such as Hal Wallis Productions, to make other pictures in England.

PERIODICAL PUBLICATIONS

American Cinematographer
1782 North Orange Drive, Hollywood, Calif.

American Home, The
444 Madison Ave., New York City.

American Journal of Archaeology
Archaeological Institute of America. Columbia University, New York City.

Antiques Magazine
40 East 49th Street, New York City.

Architectural Forum
20 W. 45th Street, New York City.

Architectural Record
19 W. 44th St., New York City.

Art Digest, Inc.
116 East 59th Street, New York City.

Art News
136 East 57th Street, New York City.

Billboard, The
1564 Broadway, New York City.

Design
243 N. High St., Columbus, O.

Equity
45 W. 47th St., New York City.

Etude
1712 Chestnut Street, Philadelphia.

House and Garden
420 Lexington Ave., New York City.

Modern Music
113 West 57th Street, New York City.

Motion Picture Herald
Rockefeller Center, New York City.

Museum News
Smithsonian Institution, Washington, D. C.
Musical Courier
119 West 57th Street, New York City.
Musical Digest
119 West 57th Street, New York City.
Musician, The
139 E. 47th Street, New York City.
Octagon, The
New York Ave., Washington, D. C.
Parnassus
625 Madison Ave., New York City.
Theatre Arts Monthly
130 W. 56th St., New York City.
Variety
154 West 46th Street, New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

ACADEMY OF MOTION PICTURE ARTS AND SCIENCES, Taft Bldg., Hollywood, Calif.
AMERICAN ACADEMY OF ARTS AND LETTERS, 633 W. 155th St., New York City.
AMERICAN ACADEMY OF ARTS AND SCIENCES, 28 Newbury St., Boston.
AMERICAN ACADEMY IN ROME, 101 Park Ave., New York City.
AMERICAN CERAMIC SOCIETY, 2525 N. High St., Columbus, Ohio.
AMERICAN FEDERATION OF ARTS, THE, Barr Bldg., Farragut Sq., Washington, D. C.
AMERICAN FINE ARTS SOCIETY, 215 W. 57th St., New York City.
AMERICAN INSTITUTE OF ARCHITECTS, 115 E. 40th St., New York City.
AMERICAN NUMISMATIC SOCIETY, 156th St. and Broadway, New York City.
AMERICAN SCENIC AND HISTORIC PRESERVATION SOCIETY, 287 Convent Ave., New York City.
ARCHAEOLOGICAL INSTITUTE OF AMERICA, Columbia University, New York City.
ARCHITECTURAL LEAGUE OF NEW YORK, 115 E. 40th St., New York City.
ARTISTS GUILD, 551 Fifth Ave., New York City.
FINE ARTS FEDERATION OF NEW YORK, 115 W. 40th St., New York City.
GRAPHIC ARTS BOARD OF TRADE, 136 Liberty St., New York City.
HISPANIC SOCIETY OF AMERICA, THE, 155th St., West of Broadway, New York City.
MUNICIPAL ART SOCIETY OF NEW YORK, 119 E. 19th St., New York City.
NATIONAL ACADEMY OF DESIGN, 175 W. 109th St., New York City.
NATIONAL ALLIANCE OF ART & INDUSTRY, 119 E. 19th St., New York City.
NATIONAL ASSN. OF WOMEN ARTISTS, 42 W. 57th St., New York City.
NATIONAL INSTITUTE OF ARTS AND LETTERS, 633 W. 155th St., New York City.
NATIONAL SCULPTURE SOCIETY, 115 E. 40th St., New York City.
NEW YORK SOCIETY OF ARCHITECTS, 101 Park Ave., New York City.
SOCIETY FOR AMERICAN ARCHAEOLOGY, Illinois State Museum, Springfield, Ill.
SOCIETY OF ILLUSTRATORS, INC., 128 E. 63rd St., New York City.
SOCIETY OF INDEPENDENT ARTISTS, 19 Bethune St., New York City.

DRAMA

ACTORS EQUITY ASSN., 45 W. 47th St., New York City.
ACTORS FUND OF AMERICA, 1619 Broadway, New York City.
DRAMATISTS' GUILD, 6 East 39th St., New York City.
ENGLISH FOLK DANCE AND SONG SOCIETY OF AMERICA, 15 E. 40th St., New York City.

Episcopal Actors Guild, 1 E. 29th St., New York City.

Independent Theatre Owners Assn., Hotel Astor, New York City.

International Alliance of Theatrical Stage Employees and Moving Picture Machine Operators of the United States and Canada, 630 Fifth Ave., New York City.

International Theatrical Play Bureau, RCA Bldg., New York City.

League of New York Theatres, 234 W. 44th St., New York City.

Motion Picture Producers and Distributors of America, Inc., 28 W. 44th St., New York City.

Motion Picture Producers Assn., Hollywood, Calif.

Motion Picture Theatre Owners of America, 1600 Broadway, New York City.

Museum of the City of New York, Theatre Div., Fifth Ave. and 104th St., New York City.

New York Public Library, Theatre Div., Fifth Ave. and 42nd St., New York City.

Screen Actors Guild, 7046 Hollywood Boulevard, Hollywood, Calif.

Theatre Authority, Inc., 545 Fifth Ave., New York City.

Theatre Guild, Inc., 245 W. 52nd St., New York City.

MUSIC

American Federation of Musicians, 57 Lexington Ave., New York City.

American Guild of Musical Artists, Inc., 2 W. 45th St., New York City.

American Guild of Organists, 630 Fifth Ave., New York City.

American Society of Composers, Authors, and Publishers, 30 Rockefeller Plaza, New York City.

Cantors' Registry, 36 E. 7th Street, New York City.

Grand Opera Guild, 250 W. 57th St., New York City.

National Bureau for the Advancement of Music, Inc., 315 Fourth Ave., New York City.

National Music League, 130 W. 56th St., New York City.

Oratorio Society of New York, 113 W. 57th St., New York City.

Philharmonic Symphony Society of New York, 113 W. 57th St., New York City.

DIVISION XXVII

EDUCATION

ELEMENTARY EDUCATION

By Wilma Leslie Garnett*
Associate Professor, Kent State University

GENERAL

"We plan" may well be called the theme of the 1944-1945 educational program at the elementary level in the United States, for even before the war had ended, school leaders were prognosticating about futures in elementary education and about demands that may be made upon that education. Plans well made should be based upon careful appraisals of stock in hand. Many schools are making such appraisals. Appraise—plan: these are the key words in reference to the present intermediate state in elementary education. In these keys is implied the idea of transition to a new order.

Schools, especially at the elementary level, face their greatest challenge. Still disjointed from the war, they must get into a period of readjustment. The biggest problems are those of getting the children who have been moving about our country with parents engaged in war service back to their home communities and finding good teachers—well educated teachers—to guide them. A school is the institution existent where two minds meet, the mind of a pupil and the mind of his teacher, inter-inspirationally concerned.

At this point of teaching, every child should learn to use his own language; should gain a command of basic arithmetic; should learn much about the social traditions and about his environment; should learn how to take care of his physical health; and should understand himself as a spiritual being with creative potentialities. The coming elementary education places its emphasis on spiritual values and recognizes the fact that these values are somewhat conditioned by the physical world. In short, the understanding and use of the basic humanities and sciences are of paramount importance. Teachers who recognize the basic issues are asking for a definition and an outline of basic essentials in the educational program at the elementary level. There is evidence that the old war between progressive and conservative camps of educationists has been dropped to give place to an interest in the two new points of emphasis for elementary education—the basic humanities and the basic sciences.

SCHOOL-COMMUNITY COOPERATION

More cooperation between the community and the school will be imperative among all agencies of educational intention—schools, churches, courts, movies, radio, libraries, and business institutions. These institutions are being drawn together in the forward-looking communities to work in the interest of children. In some cities, neighborhood schools are the order of the day. Parents are not only allowed to help but are asked to do so, and school camps as summer extensions of the programs are in focus.

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* The author gratefully acknowledges the assistance of Agnes and Margaret Sawyer in the preparation of this review.

SCHOOL SUPPORT

If schools are to meet the present demands for education at the elementary level, support of adequate nature must be forthcoming. An October 1945 report from the National Education Association gives these points in summary relative to school support:

"This bulletin has stated that in the nation as a whole the schools have never received a large enough share of public funds or of the income of the people to enable them to function with maximum effectiveness. Studies made by the NEA Research Division and others have shown repeatedly that this is true. Past experience and current predictions of future economic trends and levels suggest, however, that a substantial increase in the public-school budget of the nation can be reasonably expected in the years after the war.

"Bearing out the above assertion, facts brought out in Sections II-V of this bulletin are as follows:

"1. The general long-time trend of public elementary- and secondary-school expenditures is upward (Section II). Thruout a period of seventy years this upward trend was interrupted only twice prior to World War II; once in the depression period following the Civil War and once in the depression following World War I. School expenditures declined in the early years of World War II, but this was presumably only another brief interruption of the general upward trend. Thruout the three years between 1940 and 1943 the total amount of the decline was only about 2 percent. We do not yet know how much was spent for public schools in 1944, but on the basis of our knowledge concerning recent changes in teachers' salaries, it seems probable that the curve of school expenditures again turned upward.

"There is no reason to believe that the curve of school expenditures will reverse its direction in postwar years. School expenditures rose steeply following both the Civil War and World War I. In the absence of any indications to the contrary, it seems logical to assume that the upward trend of school expenditures which, with three brief interruptions, has remained unbroken for seventy years will continue.

"2. Aggregate payments for teachers' salaries increased about 7 percent between 1939-40 and 1942-43 (Section II). The average annual salary of teachers increased 11 percent during the same period. This compares with an increase of almost 65 percent in the average annual earnings of factory workers, and an increase of 56 percent in the average annual earnings of all employees.

"It is estimated that the average salary of teachers increased still further, by about 11 percent between 1943 and 1945, or almost 24 percent between 1940 and 1945. Even if this is true, the rise in teachers' salaries still lags behind the rise in the cost of living, and far behind the rise in the wages of other occupational groups.

"3. Estimates of the amount needed to finance a satisfactory system of public elementary and secondary education in postwar years range from just under 3 billion dollars to about 6 billion dollars (Section II). These are not predictions of actual postwar school expenditures but are rather estimates of the amount that the schools will need in postwar years to function most effectively. Provision of any such sums would have to be the joint responsibility of government at all three levels—federal, state, and local. The present education bill, now before the Congress, would provide for only 300 million dollars annually from federal sources. This sum added to probably state and local revenues would still yield a total of less than 3 billion dollars.

"4. In only one year has the share of public elementary and secondary schools in the national income ever exceeded 5 percent (Section III). That was in the deep depression year of 1932 when the schools as well as many other public functions were sadly underfinanced. In 1943 the share of the schools in the national income was only about 1.5 percent.

"A high national income will be needed in postwar years to provide jobs for a substantially increased labor force. Estimates of the amount of net national income needed to prevent serious unemployment vary from 100 to 178 billion dollars or more. If we should accept a rather conservative estimate of a post-war national income of 120 billion dollars at 1940 prices, a share for the public schools, proportionately no larger than that received in 1932, would yield in the neighborhood of 6 billion dollars. A 3 billion dollar expenditure for schools would require only 2.5 percent of a national income of 120 billion dollars. Most estimates of postwar net national income are higher than 120 billion dollars" (National Education Association *Research Bulletin,* Vol. XXIII. No. 3, October, 1945, pp. 84-85).

THE NEED FOR TEACHERS

The greatest educational need is that of teachers. The following quotation gives a summary of the teacher shortage problem:

"The shortage of teachers in the U. S. elementary and secondary schools will be even greater this year than last. The industrial manpower shortages have been solved, but no concerted action has been taken to provide the country with the 68,000 qualified teachers who are desperately needed.

"What are the causes for this predicament? Teaching standards are deteriorating and damage is being done to the profession which will take years to repair. Is there anything that can alleviate the situation?

"One out of every five teachers who signed up to teach for the school year of 1943-44 left the job before the year was out. Many classrooms had three, four or five teachers during the year. Teachers never were found for 7,700 classrooms which had to be closed. Most of these teachers left their jobs in order to get a living wage in some other field. The teaching profession has always been noted for low salaries. In contrast to war job pay, these salaries appear even less attractive. In 1942-43, only two states paid all of their teachers $1,200 or more; 44,000 received less than $600. No wonder a welding job at fifty dollars a week seems to make more sense.

"When State legislatures met in the winter of 1942-43, many of them voted slight increases in teacher pay. This winter, these legislatures will meet again and every conceivable type of pressure should be brought to bear upon State officials to get them to provide more substantial help. The following statistics, supplied by the U. S. Office of Education and The National Education Association should be used and reused by groups interested in the problem. Mimeograph them. See that every member of your State legislature gets a copy. Follow up with a detailed picture of conditions in your state. Here they are:

"Because of lower enrollments, 10,000 teaching positions have been eliminated since June, 1943. But teachers cannot be found to fill 8,000 other positions. For 78,000 other classrooms, men and women have been recruited who could not meet state requirements but who were willing to help out as best they could. These willing but underqualified stopgaps—retired teachers, tradesmen with teaching ability, officers' wives, and others—have been awarded war emergency certificates. The numbers of these certificates has had to be increased sixteen-fold since 1942" (Helen Fuller, "Teacher Shortages," *Progressive Education,* Vol. 22, No. 2, November 1944, p. 9).

NEED FOR FEDERAL AID TO EDUCATION

Normally this country has 850,000 teachers. At present, only 700,000 qualified teachers are at work—making the shortage of 150,000 apparent. One third of America's teachers have gone to better-paying jobs. The public school teacher is the lowest paid of all professional workers. Many bar-tenders, scrub women, and messenger boys are paid better than large numbers of teachers.

The drab picture painted in a recent number of the *Parents' Magazine* makes a strong case for Federal aid to education:

"Move out a few miles from the average city or town, into the countryside, and education's poverty is strikingly in evidence. Here you will find the drab, one-teacher school (there are still some 108,000 such schools), each with its own board of education, trying to raise its own school taxes from a few score scattered neighbors. Here you will find several million children attending school in mere shacks, using wornout, dirty textbooks, taught by teachers who may not have completed high school. They "keep school" as their colonial forebears did, drilling a few elementary facts into the children's memories without benefit of competent supervision or modern instructional aids. It is at the cross-roads, too, that the classrooms have been most frequently left teacherless as the better rural teacher moves into the city to fill the gaps left by the urban teacher taking better-paying war jobs. In their plight, many local school systems have turned to state treasuries for aid. The more wealthy states have responded generously—Ohio, for example, recently appropriated $8,000,000 to its school districts for this school year. But a score of states are simply too poor to spend any more money on their schools than they are spending now. And unhappily for the nation, the states least able to support schools have proportionately the most children to be educated.

"It is these poorer states which have turned to the Federal Government for help—producing another of education's great ferments.

"'Federal aid to education' is a phrase that has become, for some, 'devil words,' for others, a battle-cry of progress" (Nathan, Raymond and Brodinsky, B. P., "What's Next in Education?" *Parents' Magazine,* Vol. XX, No. 1, January, 1945, pp. 87-88).

THE PROBLEM OF NURSERY SCHOOLS

What can be done to extend the elementary program downward to include nursery schools still remains a question, especially with the teacher shortage as great as it is. In many states, attempts are being made to get state aid for nursery school programs with which to continue the work carried on under Lanham Funds (Federal) for the war years. When the last Federal grant to these funds is exhausted (probably by March 1, 1946), it is predicted that many states will have provided state funds as a source from which local funds may be supplemented to promote a program of education and welfare work for little children—a program as sorely needed in this country as in any other.

Problems of certification, closely tied up with salary schedules, demand attention. Research reports from the National Education Association give these facts:

"Of the forty-nine major governmental units (forty-eight states and the District of Columbia), forty-eight supplied data in answer to the original request. On the basis of the information supplied, it appears that twenty states (including the District of Columbia) *require* elementary school principals to hold a clearly defined special certificate in addition to a typical teacher's certificate. In seven other states (Arkansas, Georgia, Louisiana, North Carolina, Oregon, Pennsylvania, and West Virginia) a special principal's certificate is provided for by law but for one reason or another the certificate is not at present *mandatory.* In one additional state (Texas) a statement of approval is issued by the state accrediting committee but within the definitions of the present survey it is not considered a certificate required by law" ("State Certification of Elementary School Principals"—NEA Research Division. *The National El-*

ementary Principal, Vol. XXIV, No. 5, June, 1945, pp. 6-7).

INNOVATIONS IN SCHOOL BUILDINGS AND EQUIPMENT

Striking are the innovations in school buildings, reflecting the school-community aspect of education. Removable divisions of large sections of exterior walls make possible the opening of a classroom to the outer world. In fact, the two being made one, many grade schools will be forced by questioning childhood to study some phases of natural science. More window space, better artificial lighting, fireproof structures, sanitary walls and floors (those easily cleaned), walls cushioned against noise, arrangements for disinfection of the air, wider use of glass and plastics in building materials, modernistic designing—these are characteristic of the new building which is an essential undertaking of the immediate future. The long period of postponement in building is in itself a factor promoting the program today on a rather large scale. Not only fine schools for white children, but excellent buildings for Negro children are being erected. Some of the new schools are located in connection with housing projects. Mass models, prepared by architects, are being used to sell to the communities new building programs.

Better buildings and new activities demand furniture and machines designed to meet the new needs. Chair and table, beginning to take the place of the old school desk, even supplanting the movable desk-chair; library furniture; cafeteria equipment; shop room furniture; science room furniture and equipment; music room furnishings; sound systems for broadcasting within the school unit; radio equipment; audio-visual equipment; trucks; buses; office equipment are among the musts in the new educational demands for material things.

THE CURRICULUM

The curriculum has taken in many new activities, so many, in fact, that there will have to be a stock-taking time soon, in which on the basis of carefully made evaluations, the best of the program will be chosen and expanded. All the basic programs have been changed—health, reading, arithmetic, spelling, music, art, social studies. Activities have been added to bolster the learning by doing philosóphy, but, it must be admitted that much time is wasted on rather futile activities. Many are the educational wastes under the name of activities. Visual and auditory aids to learning are supplementing the book-learning materials. All the avenues of learning, doing, seeing, hearing, reading have been expanded, but with reading still in the lead. Very little expansion of the most important avenue of learning seems to be in evidence, the avenue of creative thinking. It appears, then, that this avenue must be given consideration in the building of the new programs if elementary education in America is not going to betray the present generation of children to those nations giving thought to creative learning. The large nation that puts creative thinking first in the minds of the present generation of elementary school children will lead the world tomorrow—rightly so. America should not fritter away the most valuable hours in her present possession—hours belonging to young children; America should conserve those precious hours by offering her children functional education in health; broad education in the sciences; education for cultured literacy through literature, grammar, geography, history, music, art, drama, and dance. An article appeared in *The New York Times* that is of great significance in the bearing upon the idea expressed herein (Oriana Atkinson, "Moscow's Children? Just Like Ours," *The New York Times Magazine,* Dec. 30, 1945, pp. 11, 18).

CREATIVE THINKING

Creative thinking should be the high goal set in all educational work in composition, music, art, drama, science, and other areas. In general, these are the specifications for the elementary education for future Americans. The evaluations of the old programs must needs take into consideration the demands of future Americans. By rash prognostication, one might assert that the program of the future should include nursery school and kindergarten, and five or six years of elementary school. The brighter and healthier children should be permitted to complete the basic elementary in five years beyond nursery school and kindergarten.

Will America's children be kept in excellent physical condition; will America's children be disciplined in worthwhile studies; will America's children be given a chance to be creative? Americans can offer the physical, mental, and creative program to assure her young citizens of their rights. Newly planned programs should give these fundamental issues functional consideration.

LEGISLATIVE TRENDS

Federal legislation in the interest of child welfare includes proposed appropriations for child care (the Pepper Bill); extension of the provisions made originally in the Lanham Act; request from the National Education Association for $300,000,000 to be used for teachers' salaries and for current expenses; requests for funds for 4H Club work; requests for funds for school lunches; and plans for FM radio stations for schools. Legislation by states shows these trends: increase of appropriations to make provisions for buildings needed and for augmented salary schedules; development of retirement and security programs; permitting married persons to teach.

Themes echoed and re-echoed in America include these: (1) Promote racial tolerance; (2) promote international understanding by teaching elementary children about the children of other lands; (3) teach the air age.

AIR AGE PROGRAM

One very interesting experimental program in teaching the air age was reported in a number of *Life Magazine* in 1944—the program for the Chattanooga public schools (Tennessee). No doubt many schools are developing such programs. No doubt many schools are developing FM radio programs for schools, as in the state of Tennessee. A few universities are offering state-wide educational programs in music, literature, art, and science for children. Notable is the program carried on in Oregon, on which the State Department of Education and the University of Oregon are cooperating. Not only public schools and teacher-education institutions, but libraries (for example the Akron Public Library) are setting up programs of culture for the young in America. There is a general trend toward cooperation among all professional community agencies for the guidance and protection of the young. Commercial institutions, including some industrial plans, some housing managements, some cinematic corporations, and some department stores are giving service.

THE TEACHING OF INTERNATIONALISM

Another significant movement is that of opening sources from which schools may get the current guidance needed in teaching internationalism. Not only the United States Office of Education, but the Treasury Department, Department of Agriculture, Department of Commerce, Pan American Union, the foreign offices in this country, the D. A. R., the Red Cross, all offer excellent service for informing those who teach and those who study. One can easily anticipate exchange of materials, translations, students, and teachers within a not too distant future, even at the elementary level.

The assurance that there will be an international office for the advancement of cultural and educational understanding reflects a most sanguine outlook in educational planning.

U. S. OFFICE OF EDUCATION SERVICE

Now there appears the announcement that the United States Office of of Education is being reorganized to give broader service than ever before to the schools. *The New York Times* carried this hopeful report of the planning already done: ". . . The Education Office is convinced that it can play a more active and vital role in American school life. With an expanded staff and with the addition of school specialists in various fields, it will be easier for the United States Office of Education to keep in touch with developments in all parts of the country. Particular stress will be placed on the elementary and secondary fields, where 25,000,000 children are enrolled. Studies, reports and surveys will be made in many areas, designed to help local communities. To a much greater extent than was formerly possible, the office will keep a finger on the pulse of America's educational trends and developments, offering guidance, direction or assistance wherever possible.

* * *

"To get an over-all picture of education in this country, the Commissioner has appointed a Citizens Federal Committee on Education. This committee, to consist of twenty-seven members from all walks of American life, will meet with the Commissioner periodically, to advise him as to national needs in education and suggest necessary projects.

"Beyond that, the United States office is to sponsor an American Education Assembly, to consist of 600 to 700 school and professional leaders, to be selected from every State in the Union. This assembly, which is to meet annually, can help bring the office and school systems everywhere closer together, Dr. Studebaker feels" (Benjamin Fine, "Education in Review," *The New York Times,* Dec. 30, 1945, p. E9).

SERVICES OF OTHER AGENCIES

The same organizations are furthering the cause of elementary education. Besides the governmental agencies, there are such professional groups as the Association for Childhood Education, the American Educational Research Association, the National Society for the Study of Education, the National Council of Teachers of English, National Education Association, and others serving childhood. Publications from these organizations and others include yearbooks, monographs, and magazines.

PUBLICATIONS

Significant among the national magazines are the *A.C.E. Journal,* the *Elementary School Journal,* the *N.E.A. Journal,* the *Elementary English Review, The Nation's Schools, Educational Administration and Supervision, School and Society.* To these may be added state journals. Among the magazines doing much to get best books before children are *The New York Times Book Review,* the *New York Herald Tribune Book Review,* the *Horn Book,* and the *Saturday Review of Literature.* The publication for children, known as *Story Parade,* is a literary venture to be highly commended.

Not many books on elementary education appeared during the year. More will appear and new textbooks will appear as soon as paper shortages are less acute. Excellent revisions of texts in spelling, reading, and language have kept many schools supplied with scientifically up-to-date guides to learning.

SUMMARY OF PROBLEMS

In conclusion, mention should be made of the types of problems with which elementary education is now confronted in the United States. Major problems are as follows:

Should the elementary-school unit be extended to include nursery school and kindergarten?

Should the present six-year elementary program be shortened to five years by eliminating non-essentials?

How may the program be reformed to include basic work in science, health, humanities, and the arts?

How can the American program be better designed to provide for creative learning?

What plan of support must America provide to assure a balanced program—combined Federal, state, and local support?

How can the standards of certification be made high enough to draw a superior teaching staff?

What changes must be made in the teacher-education program?

Can the American schools serve to promote world understanding?

SECONDARY EDUCATION

By Robert S. Gilchrist
Director, University School, Ohio State University
and
Alice Seeman
Assistant Junior Dean, College of Education, Ohio State University*

ENROLLMENT

The enrollment in public high schools for 1944-1945 was 5,715,000, a slight decrease from the enrollment for 1943-1944. Enrollment changes have varied greatly in cities of different sizes. The largest loss was in the number of boys in high schools in cities of 100,000 population and over (2.58 per cent). Summer school sessions on the high school level in 220 systems reported enrollment totaling 111,731 as compared with 95,459 in 1943, a gain of 17 per cent. The enrollment of girls exceeds that for boys.

Each June the schools have encouraged the older boys and girls to fill war-service jobs during the summer. These same schools have campaigned for the student's return to school each September. In anticipation of permanent withdrawal from school of youth who find employment during vacation, the educational round-up was started earlier in 1945.

HIGH SCHOOL VETERAN EDUCATION

Approximately two-thirds or 10,000,000 of those in the armed forces during the Second World War never graduated from high school. The "G. I. Bill of Rights" (Public Law 346) and the Federal Vocational Rehabilitation Act (Public Law 16) provide veterans with the opportunity to return to school. Although it is too soon after the war to know just how many veterans will take advantage of the opportunity, secondary schools throughout the country are making efforts to develop programs which will be effective in educating the returning veteran. Most high school educators recognize that the high school as set-up for adolescents is not prepared to meet this need; therefore, a special program must be developed. This program must satisfy both vocational and general education needs. Because the veteran is essentially an adult, many high schools are organizing special classes or providing work on an individualized basis. Since the veteran is generally anxious to proceed as rapidly as his abilities and interests will permit him, a high quality of guidance is demanded. Schools are being challenged to determine progress in terms of competencies required rather than time served; for this, the General Education Development Test is being used, as well as other standardized tests.

The responsibility for developing educational programs for veterans rests upon existing local and state educational agencies. To avoid "fly by night" schools growing up to profit

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*The writers made extensive use of the following in collecting data for this review: *The Clearing House*, *The Bulletin of the National Association of Secondary School Principals*, *Education for Victory*, *The Journal of the National Education Association*, *School Review*.

financially from the desire of veterans to get an education, most state departments have developed plans for accrediting a school to give veteran education. In some states, Michigan for example, legislation has been passed to expedite the setting up of veteran institutes by either local schools, or schools joining together to create a veteran center to serve an area.

TEACHER SHORTAGE

The effects of the war and war conditions upon teaching personnel continued during 1945 seriously to hamper secondary schools in carrying out effective educational programs. With approximately 300,000 teachers having left the profession since Pearl Harbor, class size has been increased, and some subjects have been eliminated. Teachers who would normally have retired continue to teach. Married women have been called back to the classrooms without an adequate opportunity to re-orient themselves to the new conditions which present day schools demand that they face.

The close of the war has not meant that the teacher shortage problem is solved or even relieved. Teacher training institutions are enrolling less than 50 per cent of the number of prospective teachers who attended before the war. During the next four years, the schools will be severely handicapped by a substantially reduced supply of adequately trained college graduates.

TEACHER SALARIES

Teacher shortage is, obviously, closely related to teacher salary. The average annual salary of classroom teachers, principals, and supervisors for 1944-45 is estimated at $1,786 (National Education Association, Research Division). This amount is 23.9 per cent above the average teachers' salary for 1939-40, while estimates of the cost-of-living increase during this same period range from 25 to 35 per cent. The average salary of teachers is now at least $500 below average earnings in industry. Industrial workers had salary increases of 56 per cent during the period from 1940-1943, while teachers' salaries were increased only 11 per cent.

The picture of teachers' salaries and teacher availability is not altogether dark. There is some evidence that laymen are becoming aware of the very serious problem created by low teacher salaries. This is evidenced by such articles as "Teachers' Pay—a National Disgrace" which appeared in the *Readers' Digest*. The committee on education of the United States Chamber of Commerce has recently issued a report entitled "Education—an Investment in People." The report takes the position that education pays, thus it is an essential investment for the advance of agriculture, industry, and commerce. Conclusive proof is offered that the volume of economic activity in the various states rises or falls with the level of educational expenditure (*Journal of National Education Association*, April 1945).

SCHOOL RECRUITMENTS

A vigorous high school recruitment program, in which secondary school students have an opportunity to find out the advantages of school teaching and its possibilities for social service, is suggested by many educational leaders. More scholarships to outstanding students for their attendance at teachers' training institutions are also suggested. In fact, several writers are taking the position that America must subsidize to a greater degree its program for development of outstanding leadership in the field of social service. Some school leaders are pointing out the close relationship between the quality of teachers which a school can attract and the quality of the school curriculum. It is believed by these educators that as the school curriculum becomes less static and more life-like young people will be attracted to the field of school teaching. These administrators take the position that the school principal and superintendent must exercise leadership to help communities give the prestige rightfully owing to school teachers for the kind of work they are doing, and must allow school teachers to live in communities as normal people rather than as individuals placed on a pedestal.

THE RIGHT TO A GOOD EDUCATION

In his message to Congress on Jan. 6, 1945, President Roosevelt set forth an American economic bill of rights in which a basis of security and prosperity for all, regardless of station, race or creed, was proposed. One of the economic rights of American citizenship enumerated was the right to a good education. In his budget message on Jan. 9, the President further elaborated on his recommendation for education. He said: "The training and educational program of the Army, the Navy, and civilian agencies during this war have broadened our conception of the role that education should play in our national life. The records of selective service reveal that we have fallen far short of a suitable standard of elementary and secondary education. If a suitable standard is to be maintained in all parts of the country, the federal government must render aid where it is needed—but only where it is needed. Such financial aid should involve no interference with state and local control and administration of educational programs. It should simply make good our national obligation to all our children. This country is great enough to guarantee the right to education adequate for full citizenship."

President Roosevelt, in his budget message, recommended reorganization of the basic structure of the Office of Education to facilitate service to the states in the development of a more adequate educational program; $619,265 was recommended for expanding and strengthening the Office of Education. A complete reorganization of the basic structure of the Office was recommended in order that proper emphasis be given to all aspects of education.

FEDERAL SCHOOL AID

Increased Federal aid to public education is proposed in the House of Representatives bill number 1296 (Senate bill number 181) which was introduced in the 79th Congress by Congressmen Hill, Ranspeck, and Thomas. This bill calls for an increase of $300,000,000 per annum in Federal funds to assist the states in financing public schools. The purpose of these funds is to assist in equalizing educational opportunity and to assist the states to meet a war-created emergency in education. It is estimated that 2,000,000 children of school age are not now in school. Ten million adults 25 years of age and older are functionally illiterate according to the 1940 census. Inequalities in educational opportunity in the nation exist in a ratio based upon expenditures per classroom unit of 60 to 1. The penalty of educational and health handicaps—for the most part preventable—in the youth population has expressed itself in the rejection of more than 5,000,000 men for military service. Proponents of Federal aid legislation point out that education builds better citizens, and better citizens make a better country and a better world in which to live. They further note that states limited to their own fiscal resources would not in the forseeable future be able to afford good schools for all youth (*Journal of the National Education Association,* October 1945).

Federal aid legislation gained ground during 1945. Educational leaders made pronouncements during the year which seemed to clarify the manner in which Federal aid for education could be given to states without imposing Federal control. Both the National Council of Chief State School Officers and the Educational Policies Commission made such statements. The need of a single agency of the Federal Government to deal with the school and the obvious implication that the Office of Education should be strengthened to become this agency were pointed out. The necessity for the Federal Government to provide funds through the department of education in the various states rather than through agencies which deal directly with the local school was emphasized.

STATE PLANNING AND LEGISLATION

Because education is so largely a state responsibility in the United States, planning on a statewide basis to meet the problems of the post-war years deserves mention. In Iowa, legislative bills were submitted which proposed strengthening the county administration of schools (state funds were made available to the amount of one-fourth the total cost of public school education), reorganization of school districts within counties, and transfer of the duties of the state board for vocational education to the state board of education.

Statewide surveys of education were conducted in Florida and in Virginia. Plans for education in Maryland are reported in a bulletin entitled "A Proposed Program for Education in Maryland." Recommendations are made for smaller classes, for extending the program from 11 to 12 years, and for an enriched school program to include physical education and health, work experience, radio and adult education. In Ohio a statewide school program is being developed out of the findings and recommendations of two workshops which were conducted during the summers of 1944 and 1945. These workshops were sponsored by the state universities, the state department of education, and other educational groups. Among the desirable changes considered are extension of the school program upward at least two years beyond the twelfth grade and reorganization of school districts to insure at least 12 years of equal educational opportunities to all youth and young adults.

During 1945 the Alabama Education Association spearheaded a far-reaching legislative program. One in every eight bills introduced in the state legislature was a school proposal. Sixty-two new laws relating directly or indirectly to education were added by the 1945 session. The sum of $4,200,000 was allotted to salary increases. A statewide sickleave program was adopted. Tenure was strengthened and retirement improved. In Illinois teachers now have a $1,200 minimum salary. Legislation guarantees to small districts at least $1,200 in local taxes plus state aid, or $80 per elementary student in average daily attendance. The minimum salary of California teachers was raised to $1,800 at the 1945 session of the assembly.

During 1945 considerable thought and emphasis was given in several states to a shift from an 11-year to a 12-year school system. In 1938, 11 states had schools organized on an 11-year basis. Three-fourths of the high schools and two-thirds of the pupils in these 11 states followed the 11-year plan. In the entire nation, one-fifth of the high schools and one-eighth of the students enrolled were on the 11-year plan. The state department of education in Louisiana recently issued a bulletin to assist schools in converting from an 11-year system to a 12-year plan. The South Carolina State Department of Education published "Suggestions for the Twelve Year School System in South Carolina." Maryland, North Carolina, Texas, and Virginia are working on the changeover.

EVALUATION OF EDUCATION IN THE ARMED FORCES

Cooperative planning by the Army, Navy, American Council on Education, National Association of Secondary-School Principals, the major accrediting associations, and other professional educational groups has produced a plan for evaluating the education obtained by men in the armed forces.

The Examinations Staff of the U. S. Armed Forces Institute and the Educational Services Section of the Navy Department have produced three types of tests: end-of course tests for USAFI courses, special subject examinations, and tests of general educational development which are battery tests on both secondary and college levels.

A *Guide to the Evaluation of Edu-*

cational Experience in the Armed Forces, which has been published by the American Council on Education, describes the content of the training programs and recommends credit that might be granted by educational institutions.

The USAFI has developed an "Application for Credit for Educational Achievement During Military Service" (USAFI Form No. 47). This form lists military and educational experiences of the soldier. Upon certification by an officer the form is forwarded to the school of the soldier's choice. Upon request of the school, USAFI will administer appropriate examinations to the individual, score the tests, and report the results to the school.

A two-year investigation as to what schools and colleges can learn from Army and Navy wartime educational techniques is soon to be undertaken by the American Council on Education. The study will be under the direction of Dr. Alonzo G. Grace, commissioner of education of Connecticut, on leave of absence for this purpose. Selection, classification, and assignment procedures will be studied. Analyses of tests, testing procedures, rating scales, and evaluation techniques will be conducted. Other studies will investigate: the techniques of curriculum construction based upon job analysis; emphasis of demonstration and performance in teaching; and continuous measurement of progress; new uses of printed materials, visual and auditory aids, and school equipment; training programs for teachers of physical education and health; short-term refresher courses; and new fields for women.

GUIDANCE

While it is recognized that much of what makes up the regular program of instruction might well be termed "guidance," the volume of literature published during the year on "Guidance Programs" in secondary schools would seem to indicate that specific mention should be made of trends in this field. One significant development has been the special consideration given to the role of the various staff members in school-wide guidance programs. Descriptions of the responsibilities of school personnel, such as the one presented by Glenn E. Smith in his article, "Distribution of Duties of School Personnel in a Guidance Program," (*Education for Victory,* Jan. 20. 1945), are illustrative of the trend toward all-staff participation in guidance programs. The importance of the homeroom was noted in numerous accounts of high school programs throughout the country. Homerooms, as the core of the guidance program, with the homeroom teacher serving as the guidance "officer," assisted by a specialist or counselor, was in general the preferred form of organization.

Studies in guidance practices conducted on a statewide basis in North Carolina and Kansas indicate a significant increase in the number of high schools maintaining cumulative records, courses on occupations, and regular counseling services. San Francisco's annual evaluation of counseling and guidance revealed that pupils in both junior and senior high schools felt that counselors were most helpful when personal problems arose. Both classroom teachers and counselors indicated that guidance was more successful in preventing than it was in correcting maladjustment. The need for improved counseling procedures and the necessity for caution in giving advice about choice of a vocation were repeatedly stressed.

A heavy increase in the number of guidance aids was another important development in the year. *The Practical Handbook for Counselors,* which was originally prepared to assist counselors working in the secondary schools of New York State, was published by Science Research Associates. Its concise treatment of problems and programs in guidance makes it valuable for use both by new and experienced workers. *Frontier Thinking in Guidance,* edited by John P. Yale, with contributions by Ethel Kawin, Donald G. Paterson, Floyd W. Reeves, Carl R. Rogers, Carrol L. Shartle, Glenn E. Smith, Esther M. Lloyd-Jones, E. G. Williamson, and others presents a series of excellent summaries and projections of guidance potentialities. *Occupational Laboratory Manual for Teachers and Counselors,* by Milton E. Hahn and Arthur H. Brayfield, with its corollary student workbook, *Job Exploration Workbook,* furnishes another source of material for the regular classroom teacher working within the framework of a guidance program.

LEARNING RESOURCES AND AIDS

The impact of the war upon the schools has perhaps been most noticeable in the area of learning resources and aids. The wholesale development and widespread use of films, radio, linguaphone-type equipment for language classes, laboratory and research equipment, scientific instruments, slides, and other illustrative devices by the armed forces has already begun to have its effect upon the secondary schools. The U. S. Office of Education is now working on a plan for the equitable distribution of the surplus materials which have been earmarked by the Surplus Property Board for immediate postwar service in schools. Everything from complete health clinic to athletic equipment will be available to schools. A school board which can supply a doctor can obtain the equipment for a health clinic, including X-ray machines. Radios for every classroom in the school and sound motion-picture projectors and educational films for a school library may be obtained.

Already schools are publishing documents on methods of getting more value from classroom films. Several state-wide programs for the development of large radio script collections that may be used for classroom instruction in many fields have been organized. The California plan calls for use of wire recordings of major happenings in all fields. A television program using high school students, high school faculty members, and administrative officers of the public schools has been inaugurated in Chicago. A half-hour program is presented once each week under the title "Young Chicago."

BROADCASTING

Under a ruling of the Federal Communications Commission, a specific broadcast band has been allocated exclusively for educational frequency-modulation broadcasting. In 31 states plans have been initiated for state-wide educational networks to be operated under the guidance of state boards of education or other educational agencies. In addition to the programs being developed by state agencies, many large cities are planning similar installations for the benefit of the schools. Chicago, Cleveland, Brooklyn, and San Francisco have been experimenting with FM broadcasting during the year.

In Chicago radio programs prepared and broadcast by the Radio Council of the Board of Education are designed primarily to stimulate interest in such subjects as history, good books, geography, world neighbors, citizenship, and the arts. Twenty programs a week are broadcast from the Council's FM station WBEZ. To supplement these programs, the Chicago Radio Council distributes handbooks with suggestions as to other extra-curriculum activities to be motivated by the radio programs. The pupil reaction is excellent. Over 500 students applied for permission to enroll in the Council's Radio Workshop which trains about 40 students a year for radio careers. A daily program is broadcast throughout Kansas as a means of improving remote rural schools. Lessons are presented in social studies, science, hygiene, art, and music.

USE OF FILMS

The American Council on Education has released 33 filmstrips dealing with contemporary life in the United States. Each filmstrip is accompanied by a script which may be used as a commentary when the film is projected. These films are available for use in secondary schools.

AVIATION

Aviation education in the secondary schools seems to have taken three forms: (1) activities related to aviation which are included as part of the regular course offerings; (2) vocational training or shopwork related particularly to aeronautics such as aircraft mechanics; (3) science or aeronautics courses which ordinarily last a full academic year and are given in grades 11 and 12.

The first type of work consists merely of introducing aviation materials which are relevant to the topics being studied. Such units of work are provided in the schools of Connecticut, California, Illinois, Colorado, and Pennsylvania in regular courses, such as social studies, English, fine arts, mathematics, biology, physics, general science, and foreign language. The second type of offering seems to be confined largely to city schools. An example of this type of program is the Illinois state plan which provides for vocational training in cities where there are "bonafide CAA approved schools for training licensed aviation and engine mechanics." ("Illinois State Plan of Aviation Education." *Bulletin of the National Association of Secondary School Principals;* Dec. 1944.) The third type of program is also found chiefly in large schools.

In 1944-1945 courses in the science of aeronautics were offered in 79 schools in Connecticut, and in 194 high schools in California where 4,661 students were enrolled (*School Review,* April 1945). The Civil Aeronautics Authority reports that more than 200 high school students in Wisconsin had flight experience during the term ended June 1945. New York has a $20,000 flight experience program in operation, in which Schenectady, Rochester, Waterloo, and other schools have already participated. Pennsylvania, Illinois, California, and Connecticut are among the states which now provide for laboratory flight experience programs.

The rapid expansion of such programs in secondary schools throughout the country is indicated by the scope of numerous detailed plans such as are presented in the "Aviation Education in Secondary Schools" issue of the *Bulletin of the National Association of Secondary School Principals.* Tennessee has established a Bureau of Aeronautics which cooperates with colleges and universities in an extensive program for the training of secondary school aeronautics teachers. Four state departments (Rhode Island, Ohio, Tennessee, and Alabama) scheduled conferences to review their programs in this area and to plan next steps (*Bulletin of the National Association of Secondary School Principals,* May 1945).

MILITARY TRAINING

Throughout 1945, there was much discussion and difference of opinion among both laymen and educators concerning proposals for a national system of military training. There was agreement that a plan which would remove boys of 17 or 18 from their normal pursuits, including schooling, would have far-reaching effects on the purposes, accomplishments, and even the structure of American education. Most major organizations of educators went on record against the passage of a peacetime compulsory-service bill during wartime. Secondary school educators did not want to see a year of military service replace the final year of high school as would often have been the case if H. R. 3947 had passed. In this bill, a boy would have entered military training at the age of 17 unless he had already finished high school, in which case he would start his military training upon high school graduation.

The Secondary School Principals' Association, in conjunction with the Research Division of the National Education Association, conducted a poll on some of the issues involved in a national peacetime policy of compulsory military training for male youth. This poll of 3,750 administrators and 250 classroom teacher leaders indicates that they are not convinced that military training will give the United States the national security that military leaders claim for such a program. Eighty-one per cent of high school principals polled were opposed to all forms of compulsory military training in peacetime. The comments of the administrators repeatedly raised questions concerning the danger to our democracy in placing so much power over youth in peacetime in military agencies and pointed to the history of compulsory military training in Europe. Many suggested that the world program for security should be further developed before America should decide the military training issue.

Throughout the nation educators attempted to encourage laymen to think of military training in terms of national defense as the only valid favorable argument. Many claims have been advanced for military training, such as: improved personal health, physical fitness, education of illiterates, respect for authority and property. Most school men say that military and civilian life are so different that military discipline is not the answer for peacetime citizenship. Many educators urge that America develop more health and recreation services including psychological counseling, immunization, adequate diets for all children, and free and compulsory removal of remediable physical defects. These same educators would hope that the public school system would be so strengthened through expenditure of the amount of money necessary for military training that youth would be better prepared for either war or peace.

DENTAL CARE

Data regarding programs of health instruction in secondary schools are encouraging. The Society of State Directors of Health and Physical Education notes: "Nineteen states report that health instruction is given in the junior high school and twenty-three states report that health instruction is given in the senior high school" (*Proceedings of the Nineteenth Annual Meeting,* Society of State Directors of Health and Physical Education).

The survey of high school dental programs under way in local school systems—county systems, city systems, and individual high schools, which was conducted early in 1945 by the U. S. Office of Education revealed that: (1) many programs were curtailed by war conditions, an important factor being the shortage of dentists in the community; (2) examination of teeth of pupils is one of the fundamental emphases upon which these dental programs are built; (3) a note to parents emphasizing the importance of dental care is an almost constant feature of these programs; (4) follow-up is most frequently the responsibility of the dentist, nurse, or physical education department; (5) with few exceptions reliance for correction is placed upon dentists in private practice; (6) generally some provision is made for dental treatment of pupils whose parents are unable to pay for the needed dental work.

Special education concerning the care of the teeth is mentioned by most of the schools reported. This instruction is usually given as part of the health education program. Use is frequently made of motion pictures, film slides, charts, models, plays, puppet shows, and assembly programs. Several of the schools have developed programs of instruction for parents as well as pupils. Where the school programs have been in operation for 20 or more years, the community has often become "dental conscious".

PHYSICAL EDUCATION

Physical education as an important factor in maintaining the health of high school students has received considerable emphasis in the literature. The Society of State Directors of Health and Physical Education reports that 27 states reported having a law making physical education compulsory; five states reported that physical education was compulsory. The American Association of School Administrators, in its publication *Paths to Better Schools,* reports that requirements with regard to time allotment vary from two to five times a week, and from 60 to 300 minutes. It is further noted that, "the students in junior and senior high schools need at least sixty minutes per day of physical activity adapted to individual needs and capacities within the school program and an equal amount after school hours." It would seem apparent that many departments of education have not recognized the importance of incorporating physical education as one of the curriculum requirements for all high school students.

RECREATION

Recreation and leisure activities for adolescent youth are assuming new importance as responsibilities of the secondary schools. Recognition of the significance of first-class school programs as a major factor in preventing juvenile delinquency has led to a widespread interest in school canteens, youth centers, and after-school club activities. The extent to which such school-sponsored programs have been developed throughout the country is indicated by such an article as "School Canteen: a Flourishing Idea" by Anna M. Jones (*Clearing House,* January 1945).

The Youthbuilder clubs which are now operating in more than 150 New York City schools are another example of the type of constructive activities being provided by secondary schools. The Manhasset Youth Center, run by the Manhasset Youth Council, an organization representative of all the community young people between the ages of 14 and 18, not only provides a recreational program for youth of this age but also serves as a medium for participation in community affairs. The three types of recreational programs mentioned are representative of the general trend.

However, summer camps sponsored by P. T. A. groups, community agencies, or the schools are frequently cited as being valuable additions to well-rounded recreational programs. Statewide school-coordinated child-care recreation programs sponsored by state departments of education are also described as being one of the most effective plans. The state of Washington furnishes an excellent example of this type of program. The office of the state superintendent gives aid to local districts in planning and financing recreation programs. Emphasis is placed upon the schools making use of their facilities to the fullest capacity. The plans include such activities as hiking, fishing, dancing, music, hobby clubs, camping, outings, and athletic activities.

WORK AND SERVICE EXPERIENCES

The marked growth in school programs of part-time employment of students, which was noted during the early war years, continued during the year. Such adjustments were made in order to contribute to the war effort. By this means many schools stopped or reversed the trend toward loss of students which developed with our entry into the war. Although the major purpose of part-time employment in most high schools has been that of vocational preparation, increased recognition has been made of the many social and personal values coming to the student who accepts a part-time job. The successful Minneapolis junior-high school work program has been notable for its emphasis upon personal values of such experiences. Noticeable improvement in attitude and behavior on the part of students, who had been considered disturbing elements in the schools, has been reported by principals and administrators participating in such programs.

Typical of the trend in work-service programs is that of Los Angeles which reports a well-balanced program of school and supervised part-time work. The Board of Education reports unsuspected values in work experience through the operation of the Four-Four Plan (four hours in school and four in work each day). Students were enabled to make better decisions in vocational selection and at the same time gave evidence of having learned much about people and machinery. The success of the program was so great that it is being considered for continuation during the post-war era.

The extensive and varied provisions of such programs as that of the Philadelphia schools for employment of students in the high schools are indicative of the trend toward more elaborate work and service activities. In evaluating these programs mention is repeatedly made of the improvement in appearance, attitude toward school, and regularity of attendance which accompanied participation in work and service programs.

The treatment of work experience as a part of secondary education in such publications as *Education for All American Youth* and *Planning for American Youth* are notable illustrations of the increased emphasis upon school work programs. The *Review of Educational Research* in October 1944 carried a résumé of the literature on this subject. A number of bulletins of the National Associations of Secondary School Principals has carried articles on school work and service programs for secondary school students.

The need for evaluation of the educational worth of these programs has been stressed in such publications as *Education for Victory* (April 20, 1945). The wide variety of school-work programs ranging from closely supervised to loosely supervised and in many cases wholly unsupervised activities furnish ample evidence that there is need for further assembling of evaluative data.

WORLD UNDERSTANDING

One of the most impressive and encouraging things about American education in the past few years is the work that has been done in the fields of international and intercultural education. Two major trends have manifested themselves in this area.

One trend has been noted in the area of direct action in the schools to promote tolerance and understanding of all peoples regardless of race or religion. Boards of education in many large cities such as Newark, New York, Chicago, Detroit, Los Angeles, Pittsburgh, Philadelphia, and Boston have declared themselves in favor of intercultural programs for tolerance. State departments of education have also become interested. Established programs are in operation in four states. In West Virginia, white and Negro high school students have called and attended conferences together. In many secondary schools throughout the country teachers are using special celebrations such as Negro History Week, Brother Week, Easter and Passover, Pan-American Week, etc., to further the idea of goodwill.

The Benjamin Franklin High School in Harlem, New York City, provides another example of a secondary school which makes use of its varied school population and location in a mixed neighborhood in building a program for encouraging tolerance and understanding. Discussion groups in the various high schools of New York (150 of them) have also served to bring about better understanding of other groups of peoples. A program of visitation to churches of three faiths by history classes in the Bellingham, Wash. High School is also an example of the kind of activity now being fostered in secondary schools for the purpose of developing greater understanding and appreciation of different religious and racial groups.

The Division of Inter-American Educational Relations, U. S. Office of Education, after analyzing reports from hundreds of Pan-American Clubs in every state in the union noted the following two major developments: (1) an increasing number of clubs are establishing scholarship funds to enable members to spend more time in study in other American Republics; (2) the extension of Pan-American Day into a Pan-American Week in which much original material and new ideas for programs, exhibits, and community projects have been produced.

Perhaps the most outstanding event of the year with regard to education for world understanding was the inclusion of educational provisions in the United Nations Charter. With respect to education the charter provides:

"That the General Assembly is authorized to initiate studies, reports, and recommendations for the purpose of promoting international educational and cultural cooperation.

"That the Economic and Social Council may make or initiate studies, reports, and recommendations on education to the General Assembly, the members of the United Nations, and specialized agencies.

"That under the Trusteeship System, those of the United Nations who have or assume responsibilities for non-self governing areas accept the obligation of insuring the educational development of such peoples."

HIGHER EDUCATION

By Ralph McDonald

Executive Secretary, Department of Higher Education, National Education Association of the United States

TRANSITION FROM WAR TO PEACE

The colleges and universities during 1945 were engaged in revamping their facilities and programs from a wartime to a peacetime basis. The large universities, coeducational colleges, and colleges for men were making revisions almost as sharp as those incident to the transition to their war programs. While in the main the process was one of going back to pre-war practices, the American college in 1946 will be in many features quite changed from its 1940 mold. Colleges for women, less affected by war demands, have been likewise less altered by post-war conditions.

CULTURAL RETARDATION DURING WAR

In sharp contrast to the action of England, Russia, Canada, and other major allied nations, the United States Government—more specifically the military leadership—followed during the war a manpower policy which reduced almost to the vanishing point advanced training in the scientific, professional, and cultural fields. Selective Service policies, by 1945, had almost dried up the male enrollment in teachers colleges, dental schools, medical schools, and other professional and scientific institutions.

Results of these policies were becoming increasingly evident by the end of the war. As an illustration, more than 100,000 persons were teaching in the public schools, in December, 1945, on emergency certificates, unable to meet even minimum state requirements of teacher preparation. The nationwide shortage of dentists and physicians had likewise become acute.

A deficit of 3,000,000 student years of college education was incurred in the United States during the war period; that is, college student years completed were approximately 3,000,000 less than it is estimated would have been completed if the nation had been at peace or if manpower policies had encouraged rather than retarded higher education.

The seriousness of our cultural-scientific retardation is multiplied by the progressive emergence of a society requiring even higher levels of scientific, cultural, and technological competence.

STUDENT ENROLLMENT

Student enrollment at all levels, which declined steadily during the war years, climbed rapidly upward after August, 1945. As of Oct. 15, 1945, the total number of students in 1,554 institutions was estimated by the United States Office of Education to be 926,000, whereas the total enrollment in the same institutions in

October, 1943, was estimated to be 738,000 (*Estimated Changes in Volume of Activities in Higher Education Institutions, 1941-1945.* U. S. Office of Education Statistical Circular SRS-21.3-016). Enrollment in October, 1944, not estimated officially by the Office of Education, was less than that of October, 1943.

The increase already evident in enrollment reflects but the early stages of a large expansion in college and university registrations. The trends have taken unmistakable lines, and full-time enrollments for the year 1946-1947 are estimated to reach a figure double that of 1944-1945, the last year of the Second World War. With such an influx of students into the colleges, enrollments will soon be the largest in history. Furthermore, the trend is likely to continue for several years, ushering in what may well be considered a new era in higher education.

Several characteristics of the enlarged enrollment are noteworthy. The increases are much greater for men students, but extend also to women students. Classes are larger at all levels, from the freshman year to the graduate school. Enrollment increases are proportionately greater in graduate, pre-professional and professional courses, and in freshman classes of liberal arts colleges. The enlarged registration of foreign students, already evident during the war years, has continued, particularly from Latin American countries, China, and our allied nations. Colleges for Negroes reported increased demands for entrance beyond the average of other institutions. Increases in enrollment at teachers colleges were general, but the rebound of post-war registration has not brought these institutions as close as other colleges to their normal student population.

Enrollment increases have not been distributed proportionately among the individual colleges of the country. There has been a marked tendency of veterans to choose large and well-known universities and professional schools, while smaller colleges generally have thus far reported less striking increases owing to veteran enrollment. The Veterans Administration found that, in the autumn of 1945, of college students enrolled in more than 1,200 colleges and receiving benefits under Public Law 346, popularly known as the G. I. Bill of Rights, 43 per cent were concentrated in 42 institutions.

Chief factors accounting for the unprecedented rise in enrollments have been: (1) demobilization of the armed forces; (2) Federal subsidies through the Veterans Administration for the education of veterans; (3) reduced demand for employment of minors and youth in the nation's economic life; (4) relaxation of tensions induced by total war; (5) broadened educational programs with wider appeal to students; (6) a reassertion or perhaps even a strengthening of the general American faith in education ("How Americans rate the job colleges and universities do today, and can do in the future," *Fortune Magazine,* April, 1945). Undergirding the enlargement of higher education has been the steady growth of secondary education, with the persistent long-range increase in the number of high school graduates remaining evident as a strong national tendency despite a falling off during the war.

VETERANS IN THE COLLEGES

Spurred by Federal benefits covering subsistence as well as educational fees and supplies, veterans of the armed services have accounted for a large part, though by no means all, of the expanded college population. The number of veterans in higher education, estimated at scarcely 12,000 in January, 1945, probably exceeded 100,000 by the end of the year. As revised late in December, the educational provisions of the United States Government under Public Law 346 afford subsistence allotments of $65 per month for the veteran without dependents or $90 per month for the veteran with dependents. Subsistence benefits for disabled veterans undergoing rehabilitation training are still greater.

The subsidy policy of the Government for veterans education continues to discriminate somewhat against certain publicly supported and private low-tuition institutions for the reason that the original bill provided for Federal payments based on tuition and student fees. Adjustments made administratively by the Veterans Administration and legislatively by the Congress in recent amendments to the Serviceman's Readjustment Act reduce the inequities by establishing out-of-state tuition rates for in-state veterans, an assumed minimum tuition rate, and estimated cost of teaching supplies and personnel as elective alternate bases of Federal payments to institutions.

HOUSING IN COLLEGE COMMUNITIES

Acute shortages of housing, especially for married veterans, have developed in many college communities. While colleges had married students before the war, their numerical proportion to entire student bodies was small. Also, many pre-war married students left their families at home while attending college. Veterans, having been separated from their families for the war years, or having recently been married, desire to have their families with them. Throughout the nation it is estimated that probably 30 per cent of veterans attending college are married, and the proportion is half or more in some institutions.

Existing dormitory facilities of the colleges have proved wholly inadequate for married veterans, as have the residential facilities available off-campus. Surplus government-owned housing, made available after some delay, has helped, but the problem has become increasingly serious. For unmarried students the housing shortage has been less acute but has reached emergency proportions at some of the large institutions.

BUILDINGS AND EQUIPMENT

Little building has been done at the colleges during the war years, additions to plants being limited to the needs of the Army and Navy units. Classroom, laboratory, and library facilities at many institutions became overcrowded before the end of the year. Repairs, replacements, and improvements in existing buildings and equipment have fallen far behind normal. Thus the colleges face the period of greatest demand upon their services with plants and equipment in many instances below standards of adequacy for the load.

Initial financial provisions for plant expansion and improvement were made during 1945 for a considerable number of colleges, but in most such instances the money made available has been unspent because of the critical shortage of building materials and manpower. A case in point is Michigan State College, which had money in the bank for a considerable period before any building contractor could be induced to make a bid on the desired construction. The greater number of colleges and universities by the end of 1945 had neither the financial resources nor the available construction facilities to begin needed expansion. Contract prices where plant expansion was made during the latter part of 1945 were reported to run from 40 per cent to 70 per cent higher than pre-war building costs.

Preliminary steps toward Federal public works subsidies, the emergence of a unified housing program in the Federal Government, legislative appropriations in several states, and scattered authorizations of bond issues give promise of aid to public colleges in the matter of building. Building fund drives, memorial funds for alumni killed in the Second World War, and bond issues for self-liquidating projects are the principal sources being employed by private institutions. A vast store of surplus government property began, late in 1945, to yield a trickling stream of needed equipment items to institutions, public and private.

STAFF PROBLEMS

By Christmas, 1945, a serious shortage of instructional manpower was reported throughout the country, particularly for scientific and technological courses. The available supply of personnel and guidance specialists was quickly reduced to a point near exhaustion.

The faculty shortage was aggravated by several discernible factors: (1) slowness of demobilization of faculty members in service; (2) low output of graduate schools during war years; (3) attraction of thousands of former faculty members into government service and business employment; (4) low salaries throughout higher education; (5) housing shortage; (6) expanding services, as well as growing enrollments in colleges and universities; (7) inadequacy of security provisions, such as retirement and tenure, in many institutions; (8) lack of professional standards as to classification, compensation, and promotion in many colleges; (9) pressure of increased taxes and inflationary price trends, which was only partially offset by salary adjustments in the majority of institutions.

The shortage, growing more acute as time passes, is further complicated by the incompleteness of professional placement facilities and services at the national level.

STATEWIDE PLANNING

New impetus came in 1945 for the movement toward statewide planning and coordination of higher education programs. The United States Office of Education, Division of Higher Education, published two influential bulletins stimulating cooperactive planning (*Data for Statewide Planning of Veterans Education,* United States Office of Education Bulletin, 1945, No. 4.; *Higher Education Looks Ahead,* United States Office of Education Bulletin, 1945, No. 8). College Associations and voluntary state conferences, almost without exception, pointed the thinking of their constituent institutions toward closer coordination in postwar planning.

Higher education surveys and commission studies in Alabama, Connecticut, Illinois, Mississippi, Pennsylvania, Virginia, and West Virginia carried forward the concept of statewide integration. The Mississippi survey, completed in 1945, provides a particularly outstanding pattern for the comprehensive study of public higher education within a state.

WOMEN IN THE COLLEGES

The year 1945 witnessed further deepening of the trend noted by Prof. Alonzo F. Myers in 1944, namely, an increasing enrollment of women in colleges and universities, and an ever widening spread of women students into the various educational and vocational fields" (The American Year Book, 1944, p. 992). Coeducational institutions found women applicants to fill an increasing number of residential units left vacant by the calling of men into the armed services. On many campuses the reoccupation of men's dormitories by returned veterans resulted in considerable dislocation among the greatly increased number of women students. Women's colleges reported capacity enrollments almost everywhere for the Fall of 1945.

LESS THAN FOUR-YEAR PROGRAMS

Events of 1945 removed all doubt as to the emergence of a major trend toward higher education programs of less than four years, in addition to the regular baccalaureate courses. The closing of a considerable number of junior colleges during the war had given rise in some quarters to the belief that college programs of one, two, or three years duration might meet a decline in demand.

New York State is meeting the need for post secondary education of less than baccalaureate level by the establishment of a statewide system of technical institutes. Primarily vocational in their nature, the programs of these institutes include varying proportions of general studies. Usually the course offered is for two years.

The University of Nebraska recognized the demand for less than four-year programs, and the faculty instituted, under the administration of the General College, 29 separate and distinct vocational-cultural programs of less than four years, chiefly of two years' duration.

The trend illustrated by the New York State technical institutes and by the Nebraska General College has become manifest in numerous institutions—junior colleges, urban universities, and elsewhere.

EXTENSION OF COLLEGE SERVICES

Closely related to the expansion of less than four-year programs is the extension of college services beyond the campuses and in evening classes. The Engineering, Science, and Management War Training courses, which provided training for 1,700,000 war workers, revealed in many areas the vast possibilities of off-campus specialized courses for the general adult population. Held in abeyance by the manpower demands of total war, the demand for such courses developed to substantial size during 1945. Resulting from this demand during the latter months of the year were a growing number of extension centers, a variety of new programs offered, and a widespread increase in extension enrollment, both for credit and for non-credit courses.

The continuation of 1945 trends, which seems assured, will mean a significant spreading out of higher education services and enrollment. The wider distribution of higher education means the reaching of a much wider range of population in age, in geography, and in interest served.

RESEARCH

Revelation during 1945 of the astounding wartime discoveries in radar, atomic fission, medicine, and other fields produced an interest in scientific research far beyond that of any previous period in the nation's history.

Although clouded for the time being by an undue emphasis upon military uses and by a reluctance of military authorities to relax their wartime control and secrecy, a new era of scientific research appears to be inevitable. Bills to establish Federal Government subsidies for research, introduced in 1945, have strong support in both houses of Congress. The major issue in connection with this proposal, at the close of 1945, centered around the question of freedom of research, especially from military control and emphasis. Another important issue arose as to whether research in the social, cultural, and non-technological fields should be furthered by government subsidies to balance progress in scientific knowledge. The place of pure research, as well as research in applied science, seemed to be assured in the Federal subsidy program.

GUIDANCE

Expansion of facilities and personnel for advising and guiding students was one of the major developments in higher education during 1945. The establishment of guidance centers for veterans under the immediate direction of the Veterans Administration, together with the establishment of guidance service for veterans by universities under contract with the Veterans Administration, provided Federal support in this development.

While the primary emphasis has been upon guidance for veterans, most of the colleges have improved their advisory services for their regular students. The limited supply of professionally trained guidance experts has deterred the rate of expansion of such services.

The increased faculty time required for providing personal advisement to each student has not been matched by a commensurate increase in the number of faculty members. The burden of student advisement has, therefore, fallen as a heavy time consumer upon many faculty members already faced with full schedules. Despite the obstacles, however, guidance was fully recognized by the close of 1945 as a necessary and important specialized service of a college to its students.

CURRICULUM

The year was unusual both in the extent and in the nature of curriculum studies made. With unprecedented interest and vigor, faculties throughout the nation considered, evaluated, and revised their requirements as to curriculum.

In addition to the expansion of vocational-cultural programs of less than four years mentioned above, there was a widespread effort to clarify and re-define the nature of general education. The elective system, the measurement of education in terms of credit hours, and other accepted practices were under heavy criticism.

A notable example of curriculum study was that conducted at Harvard University. A Harvard faculty Committee on the Objectives of a General Education in a Free Society published its report in the summer of 1945 (Buck, Paul H. and others, *General Education in a Free Society,* Harvard University Press, 1945). The Committee report has received such wide publicity that President Conant, in his annual Report to the Board of Overseers, stated: "I doubt if any single volume published under Harvard auspices or written by any member of the Harvard faculty has left an impress on American education comparable to the eventual effect of this careful study" (Conant, J. B., *The President's Report, 1945,* Harvard University).

The principles laid down in the Committee report were adopted on an experimental basis in October, 1945, by the Harvard Faculty.

A summary of the new general education plan at Harvard is contained in President Conant's annual report, as follows: "Briefly, the plan envisages the development of a group of very similar alternative courses of a new type in (a) the Humanities (the courses might be called Great Texts in Literature); (b) the Social Sciences (the courses might be called Western Thought and Institutions). Eventually every undergraduate would be required to take one of these alternative courses in each of these two areas. In science there would be two to four closely related alternative courses concerned with the Principles of Physical Science and a similar group dealing with the Principles of the Biological Sciences. Eventually all students in Harvard College would be required to take one course in either the one group or the other.

"It is these new courses in the Humanities, the Social Sciences, and the Natural Sciences which it is expected will furnish 'the common core, the body of learning and of ideas which would be a common experience of all Harvard students.'

"But the new regulation as to the general part of an undergraduate's education does not stop at requiring three courses of a new type. In addition, when the plan goes into effect, the student will have to take also three further courses in general education. No one of these additional courses shall be in the student's field of concentration. The choice will be confined to the courses given by the usual departments but approved by the new Committee on General Education as fulfilling the aims of a general education" (*Ibid.,* p. 7).

President Conant further comments on the plan: "It is thus not the elective system which is modified by the recent votes of the faculty to which I have just referred; the free elective system was replaced long ago by a system of concentration and distribution here at Harvard. The new plan is rather a scheme of directed distribution. The faculty has finally decided, following the lead given by the Report of the Committee on the Objectives of a General Education, that as a basis of a general education in college one must have something more than a distribution of a quarter of one's work according to some general pattern. The essential point is that special courses are to be provided in certain specified areas. These it is hoped will answer the need we have sought here for so long to fill by experimentation with patterns of distribution. It should be noted in addition that the new plan provides for six-sixteenths of a student's time instead of a quarter being spent outside of his special field" (*Ibid.*, p. 9).

FINANCIAL CONDITION OF INSTITUTIONS

An increasing number of colleges were facing serious financial problems as 1945 began. By the end of the spring terms, many institutions were in desperate straits. Particularly hard hit were men's colleges, teachers colleges, and certain junior colleges. Heavily dependent upon student tuition and fees for income, certain of these colleges had suffered serious reductions in their receipts as the supply of men students was diverted almost entirely to the armed services and war pursuits.

Reporting upon the growing financial crisis of many colleges and universities, a special advisory committee appointed by the Committee on Education of the House of Representatives urged, in February, 1945, that Congress appropriate an annual sum of $25,000,000 as a wartime subsidy fund to replenish partially the college revenues lost through decline in enrollment (*Effect of Certain War Activities Upon Colleges and Universities,* Report from the Committee on Education, House Report No. 214, February 23, 1945).

Although studied by the House Committee, the proposal had not been acted upon when war ended.

Despite increases in receipts from student fees as a result of their enlarged enrollment, many colleges were still in serious financial condition. The continual drain on their resources during the war years left many in a weakened position. Increases in legislative appropriations to state institutions have rarely been sufficient to meet the increased price level, provide for the enlarged enrollments, and increase faculty salaries to offset inflation.

The situation at the close of 1945 was serious throughout the nation, particularly in the matter of faculty salaries. Without greater financial support to enable the payment of much more adequate salaries, a qualitative disintegration of higher education seemed likely. Increased enrollment, not accompanied by substantial augmentation of income from other sources as well as from student fees, served to intensify rather than to solve the financial problem of many institutions in which educational costs per student were far in excess of the fees collected. Even in privately supported colleges the educational cost per student averaged twice as much as the amount of tuition. In publicly supported institutions the educational cost before the war was roughly six times the average amount of student tuition.

The rapidly increasing enrollment of students, already an established trend, makes it imperative that higher education in the United States receive far greater financial support, from both private and public sources, than it has ever before received.

VOCATIONAL EDUCATION

By L. H. Dennis

Executive Secretary, American Vocational Association, Inc.

GENERAL

Termination of war training programs shortly after V-E Day, swift initiation of effective reconversion training, an appraisal of war training work and retention of those services with a permanent, peacetime value—these were the major factors affecting, and accomplishments of, vocational education during 1945.

The public vocational schools and classes trained more than 11,500,000 men and women for work essential to the war industries between 1940 and

1945. These workers were trained for the exact job requirements of specific war industries, in the numbers indicated by industry, and often within the very plants where they were to be employed following training. They were prepared to make an immediate and effective contribution to the national war effort, and that contribution stands unequaled and unchallenged by the schools of any other nation in the world.

Before V-J Day, the vocational schools were directing their efforts to their evident obligation to veterans and demobilized war workers. Guidance and occupational adjustment services, training and retraining, were clearly the next assignment. Employment, which involves employability, posed the most serious problem facing education upon cessation of actual warfare and cut-backs in the war contracts which had furnished work at high wages for many millions of Americans.

In 1929, there were approximately 47,000,000 in the national labor force—the peak figure until 1944 when it reached 65,000,000, including men in the Armed Forces (*Vocational Education in the Years Ahead,* Bulletin 234, Series No. 7, U. S. Office of Education, in process of publication). Absorption of the war-employed of these 65,000,000 into peacetime employment could not be accomplished immediately upon arrival of V-J Day, and the schools recognized their role before they were called upon to contribute to the solution of this most recent national emergency.

AGRICULTURAL INSTRUCTION

Mechanism of both agriculture and industry have made increased yields, higher levels of production, and greater output per worker possible. During the war, when farm workers were not available, American agriculture achieved its greatest production through improved farming methods and organized instruction in the construction, maintenance, and repair of farm tools and equipment. Lessons learned during the war emergency remain a factor in agricultural economics and will have a direct bearing upon the migration trend from rural to urban communities. U. S. Census reports show that in 1930, there were 3,975,769 boys and girls between the ages of 10 and 14 on the farms in the United States. Ten years later only 2,434,241 of that same group of children remained on the farms. A total of 38.77 per cent had left before they reached the age of 25 years. There is no reason to presume that the percentage will be lower for the present or in post-war years for which no statistics can yet be available. In addition to the normal migration trend, it is to be anticipated that rural boys who entered the armed forces at 18 years and there obtained certain technical or scientific training, will increase this migration percentage.

At the same time, technological and scientific improvements and developments in business and industry pose the same problem as is evident in agriculture. If fewer men can accomplish more, there will be fewer job openings.

EDUCATION IN SOCIAL LEGISLATION

Social legislation such as the child labor laws, the Wagner Act, and the Walsh-Healy Act also have a direct bearing upon the obligation of education (*American Vocational Journal,* October, 1945: "Is There Too Much Social Legislation?" and November, 1945: "What About Youth in a '60 Million Job' Nation?"). Youth who migrate to industrial areas, or would leave school to work, find that they can not obtain employment until they have reached a specified age. Also, rural youth who meet the age requirement often find themselves at a handicap through lack of industrial or business skills. Without training for trades and industries particularly, they enter the labor market as unskilled workers.

AREA VOCATIONAL OR VOCATIONAL-TECHNICAL SCHOOLS

To meet this new challenge and obligation, education is giving ever-increasing attention to the establishment of area vocational or vocational-technical schools, and to the addition of 13th and 14th grades.

In spite of the spread of vocational education and the increased popular demand, thousands of communities are without its benefits or are only partially served. The reasons are obvious. Vocational education requires teachers with special trade or occupational training, and the tools and equipment essential to the pursuit of an occupation. Special training shops or laboratories also are necessary. The small one-room country school in a district with low valuation can not justify the expense involved in furnishing programs of trade and industrial education, distributive and office occupations training, agricultural education, and homemaking. In the fast-moving industrial world, also, today's inventions make obsolete yesterday's methods and machines, thus adding to the financial problems of the school which purports to provide *bona fide* vocational training. In agricultural states and rural areas, there may be a program of vocational agriculture, but the other vocational fields are not included in the curriculum in spite of the need which population and migration trends make obvious.

As described by the American Vocational Association (*Area Vocational Schools, The Enlargement of Opportunities for Vocational Education,* 1945): "An area vocational school as at present conceived, may be established, (a) as an extension of the offerings of an existing school system to reach wider geographical areas and larger numbers of pupils, (b) a separate vocational school established and maintained cooperatively by two or more existing districts in which specialized courses could be maintained economically and efficiently, (c) as a county school, and (d) as a state school designed to serve pupils for the entire state in one or more highly specialized fields." The Association recommends a strong vocational curriculum designed for the specific needs of a group of people heretofore largely ignored by educational programs. The curriculum should be sufficiently flexible to contract or expand with fluctuations of the employment cycle, should "accept placement and subsequent growth in a job as the ultimate goal of instruction; proficiency on the job the proper measure of success."

The purpose of an area vocational school would be to offer training preparatory to entering an occupation, and upgrading in a chosen occupation.

Actually there are hundreds of area schools already in operation although many are not so named. New York City, for example, has a Foods Trade School, a Needle Trades School, and the Gompers Vocational High School which serves the electrical trades. These schools provide special training for the entire area of New York City. Connecticut has many schools which are, in effect area schools. In other states the system and philosophy are well-established, and area schools have been serving the people for years.

Among the states which have passed legislation providing for area schools during 1945 are New York, New Hampshire, Minnesota, Maine, Georgia, and Washington where the new legislation provided specifically for 13th and 14th grades. In addition to state legislation providing for area vocational schools, provision is included in S. 619 and the companion bill, H. R. 4384 for Federal funds to assist states in this extension of education to meet the pressing need projected by an inevitable period of occupational readjustment, as well as additional funds for expanding the program in the established secondary schools.

VETERANS' EDUCATION

Training and retraining of veterans, foreseen as a major work for the school as soon as the war ended, was just beginning to assume the probable ultimate proportions at the end of the year. The natural reaction to military discipline and war's emotional pressures, together with the opportunity to earn at a high wage level during the war, were not conducive to an immediate return to school after demobilization. In spite of G.I. educational benefits, veterans have been slow to resume their education. The full impact of veteran enrollments probably will not be felt until 1946 in the vocational schools. The schools, however, were prepared to render the necessary services when the veterans returned. "As men and women now return from military service and from war industries, vocational schools again are changing and modifying their programs to meet the peacetime training and retraining needs of these individuals and groups. Essential to a war emergency, vocational education is equally basic to peacetime social and economic security. Through this training the nation maintains a vocational adequacy, both for the pursuits of peace and as a readiness for any new international exigencies" (*America's Vocational Schools,* the American Vocational Association, Inc., 1945).

Carrying over from the programs of war production worker training and food production war training, the special programs for veterans usually provide for entrance into a training program at any time and at the individual's present point of skill or knowledge; for termination of education and training upon satisfactory achievement with graduation upon this culmination of training rather than upon any pre-determined time requirements for earning specified credits. This concept of education and training is evident also in adult education and out-of-school youth programs not designed specifically for veterans. It is an emerging trend which may change radically the entire educational system, replacing rigidity of schedule with a flexibility which is based upon individual capacity to learn.

Nearly every state has mobilized its resources to provide the services veterans will need upon their return. Publications and directories have been issued, usually with the cooperation of the educational agencies and frequently by either city or state departments of education. The philosophy expressed in the Connecticut program is universal:

"When our veterans come back from the cold and wet foxholes of Europe, the jungle islands of the Pacific, and from our bombers, fighter planes, and warships, they will want job opportunities. They do not want to be pampered or catered to. They want to make their own way. That is what they are fighting for. If they are denied this opportunity they will feel they have fought in vain. To provide this opportunity we are endeavoring to see that every possible assistance in the way of information, counseling, training, education, and mental and physical aid is made available to them in their own home towns" (*Governmental Cooperation and the Returning Veteran in Connecticut Communities,* Council on Intergovernmental Relations, Washington, D. C., 1945).

Vocational schools and departments have been established throughout the country in accordance with that philosophy. In Detroit, a Veterans' Institute was created as a division of the Cass Technical High School. The Administration recognized the average high school courses as too slow, too immature, and too restrictive for war veterans who could scarcely be expected to "ask for hall passes" or to be subjected to a visit to the principal's office as a disciplinary measure. At Detroit's Veterans' Institute men or women may enroll any day, study any subject or combination of subjects they desire, may work as fast or as slow as their individual capacities permit, and "graduate" as soon as they have completed their work.

ADULT AND OUT-OF-SCHOOL YOUTH EDUCATION

Vocational education long has recognized its responsibility for providing for the needs of this group. There now is recognition of a broader service—helping the out-of-school youth between the ages of 18 and 25 particularly. Here is a period when he is not established or settled in a trade or occupation; a period when he experiments, flounders, and may experience disheartening failure. To follow-up and follow-through with this group is an increasingly important service.

Both mature adults and out-of-school youth can be classified as either the employed or the unemployed. Their education and training needs do not differ greatly. The employed group will need either supplementary training, upgrading training, or a program to prepare them for a change of occupation. The unemployed will need a long-term training program preparing them for entrance into an occupation, brush-up or refresher training if they have been out of employment but have at some time had work experience, or training in order to make a change if they do not desire to re-enter the field in which they have had some experience. These types of programs are not new to vocational education.

CARRY-OVER FROM WAR TRAINING

Breaking down instructional programs or courses into short units, so successful in the training of large numbers of workers for war industries, is carrying over into the peacetime rearrangement of the secondary school curriculum. To vocational educators, job analyses and the breakdown of a trade into blocks, operations, and steps is not a new procedure. It probably reached its maximum use as an educational device in organizing the short-unit, single-skill war training courses, and the lessons learned through this program are not being discarded.

Another carry-over "by popular request," are the courses in "repair, operation, and construction of farm machinery and equipment," and "production, conservation, and processing of food for family use,"—the latter through the establishment of school-community canneries. Enrollment data reveal that these two courses account for 82 per cent of all enrollments in the program of Food Production War Training. Thirty-four states reported a total of 5,520,466 farm machines repaired and put into use; 31 states canned 53,427,962 quarts of food for family use.

Extensive use of audio-visual aids, establishment of film lending libraries, and production of an ever-increasing number of acceptable training films, has accelerated the acceptance and use of this teaching device in the total educational program.

ADVISORY COMMITTEES

A closer relationship between schools and agriculture, business, industry, and labor developed during the year and is being earnestly fostered by educational leaders as a wholesome and beneficial development in school-community life. In planning for the future, the American Vocational Association advocates inclusion of advisory committees in state plans for area schools: "Each state plan should provide for a special state advisory committee on area vocational schools on which would be represented the employment services, prospective employers, labor and farm organizations, workers in the various fields for which training would be offered, and also men and women in the community whose judgment would be valuable in making necessary decisions pertaining to the function of the school, the program it should offer, the changes that would need to be made from time to time, and the placement in jobs of those whom the school has trained" (*Area Vocational Schools,* The American Vocational Association, Inc., 1945).

The use of advisory committees is not new, but the plan probably rendered its most extensive and effective service in the war training program. At the war's end, many leading industries continued to follow the pattern and presented to the schools their estimates of their need for trained manpower. As an example, testifying before a Senate sub-committee in hearings on S. 619, Douglas Whitlock, general counsel for the Structural Clay Products Institute, stated: "The construction industry will be called upon to execute a sixteen billion dollar a year building program that is geared to provide employment for eight and one half million men. In this annual post-war, sixteen billion construction market, masonry construction will maintain its proportionate share. With only 65,000 craftsmen available, 82,500 new brickmasons will have to be trained immediately."

WORK EXPERIENCE—TEACHER TRAINING

Work experience, both for learners and for their instructors, increasingly becomes a part of the educational program. The need for work experience in training has come to be considered the heart of a practical education system. Success of the men who were "loaned" to the schools by industry to act as instructors in the vocational war training program strengthened the convictions of those who have urged work experience or "internships" for prospective teachers during their preservice teacher training. Among recent experiments are the cooperative efforts of the Michigan teacher-training institutions, the State Board of Control for Vocational Education, the Ford and Chrysler companies, and Detroit retail establishments. Teachers, counselors, and school administrators from any state were privileged to enroll. They were paid the prevailing wage for the hours they spent on the job and received graduate credit from the institution through which they enrolled. Their evaluations of the program would warrant its extension.

Teacher training and teacher recruitment were major considerations during the year. Experienced teachers who left the elementary and secondary schools during the war years totaled 300,000 by early 1945, and probably no group suffered a greater proportional casualty than the vocational educators. For example, the loss of employed teachers of vocational agriculture was more of a factor in the teacher-supply situation than the number of new teachers trained and placed in vocational agriculture. Approximately 5,700 employed teachers left the work in the three-year period prior to June 30, 1944. The number of departments of vocational agriculture was reduced from 9,000 to 6,500 with lack of qualified teachers the usual reason.

SUMMATION

As the purposes and methods of vocational education are becoming better understood, there is emerging a clearer understanding of its beneficial services, and a realization that there is no conflict between general education and vocational education and its occupational adjustment service. Vocational education has, in practice, supplemented and in no way supplanted general education. The experience of the year opened the way for further expansion of the program of vocational education, coordinated with all other phases of the total educational service in the public schools.

ADULT EDUCATION

By J. O. Keller and H. G. Pyle
The Pennsylvania State College

GENERAL

The year 1945 saw the end of the war. Peace thrust many challenges before adult education agencies. What programs are available for vocational adjustment of military personnel? What can education bring to the serious misunderstandings of industrial relations? What should be our national policy with respect to loans to Britain; of the need for relief and rehabilitation of war-torn countries? Of national defense for the future including the question of universal military training? What of price control, taxes, wage levels; of the use of FM radio and of television for educational purposes; of social security and unemployment; of racial and cultural tensions? Adult education agencies can help to formulate intelligent opinion on these issues, given the means and leadership.

The ending of the war saw also the conclusion of the vast war training programs for industrial production. The educational programs for members of the armed forces were gradually coming to an end. Perhaps an indictment of us as a nation is that we do not with equal energy and promptness establish parallel educational programs dealing with problems of the peace. Public Law 346, providing educational benefits for service personnel is a step in this direction, but that legislation was passed as repayment of a debt owed our veterans. It did not attempt to meet real adult education needs. The rapidity with which scientific discovery was going ahead served notice, among other things, of the greater and greater urgency for a program of universal education emphasizing principles of international morality.

EDUCATION IN THE NAVY

During the war a strong program of off-duty education was carried on in the Navy known as Educational Services. It had two major functions: (1) to inform on the causes and progress of the war, and (2) to provide instructive use of leisure time. About 500 professionally trained officers in the educational service devoted full time to the carrying out of these functions. These officers were assigned at major naval establishments all over the world, and at continental naval hospitals. The Educational Services officer acts as administrator, determining needs and interests of personnel, recruiting instructors, assembling materials, and procuring needed classrooms. These officers also assisted in enrollment of correspondence and self-study courses of the United States Armed Forces Institute and also offered a guidance service.

The Educational Services at Pearl Harbor, for example, in May and June of 1945 saw 174 classes in operation in some 50 different subjects. Five thousand students were enrolled in a wide variety of courses, and the completion rate of these classes was relatively high, about 65 per cent. After V-J Day, there were several significant developments in the Educational Services program. During the war period the program was almost entirely an off-duty program. It now began to operate during working hours and was a great help in maintaining morale. The percentage of personnel enrolled in classes increased considerably. Subject matter choices reflected the post-war interests of the enrollees. A remarkable increase was noted in demands for help in formulating post-war plans. Classes at certain bases utilized all available space such as theatre, mess hall, barber shop, chapel, legal office, and gear lockers.

"Dewey University," in another instance, consisting of three Quonset huts set among palm trees, was established in the Philippines near Manila. Thirty-six classes were in session there in October, the faculty comprising both officers and enlisted men. All base personnel was permitted to attend at least one 55-minute class per day on duty time. Greater demand was also noted for correspondence courses offered by the Armed Forces Institute. The number of lessons submitted in these courses also increased sharply. Counselling interviews were reported by the hundreds, and in some large commands, such as in the Philippines, reports of monthly counselling interviews ran into the thousands.

Navy personnel also began to make increasing use of accreditation procedures. Results of a survey conducted in May and June indicated that 200,000 Naval personnel had already applied for credit. There were in the Navy about 2,000,000 men who had not completed high school, and for hundreds of thousands of them training and educational gains helped to advance their education. Testing became increasingly important in connection with accreditation, with the General Educational Development test proving most useful in giving an index of an individual's educational maturity. In September, on the Guam Island Command, 289 classes were in operation with a total enrollment of 3,989 persons. Self-study programs occupied an additional 3,701 persons. There were 1,004 enrollments for USAFI correspondence courses and other educational programs were in evidence.

Certain it is that a substantial percentage of men and women in the Navy availed themselves of educational opportunities. Men and women, taken suddenly from civilian life, carried with them their interest in learning and their plans to better themselves. They were willing by the hundreds of thousands to use their free time in study. Tens of thousands in the Navy were also sufficiently interested in helping their fellow service personnel to be willing to serve as teachers and instructors in their free time with no compensation other than satisfaction derived.

The training program for members of the Women's Reserve has been gradually decreased and was completed when the last class graduated in January, 1946. At its peak the training of WAVES represented preparation for duties in more than 36 fields.

EDUCATION IN THE ARMY

Records of the Information and Education Division, War Department, indicate that since April, 1942, there have been more than 1,200,000 enrollments by military personnel in correspondence and self-teaching courses available through the United States Armed Forces Institute. During the same period an estimated 1,500,000 took advantage of off-duty classes organized in military installations in the United States and the various overseas theaters.

Since the defeat of Germany, more than 1,000 schools, established within military units in Europe and the Pacific areas, have offered literacy training, secondary school subjects, vocational education including on-the-job training, and junior college courses to troops awaiting shipment home. The largest of several technical schools, utilizing Army equipment and civilian and military specialists for instructional purposes enrolls a total of 4,000 students in 21 trades every eight weeks. Approximately 50 foreign civilian colleges, universities, and other agencies offering definite educational and cultural advantages are serving a total of several thousand soldiers each month. In addition, Army university study centers, with a total capacity of 11,000, are functioning at Shrivenham, England, Biarritz, France, and Florence, Italy. Programs offered resemble the usual college summer school session. The staffs include qualified military personnel and over 350 faculty members drawn from American colleges and universities. In the Pacific area, a program similar to that in Europe developed rapidly after the defeat of Japan.

Civilian schools have experienced a need for accurate information about specialist training and other educational opportunities in the service in order that this experience might be evaluated for accreditation purposes. In order to meet this need, the American Council on Education prepared a handbook titled, *A Guide to the Evaluation of Educational Experiences in the Armed Services.* This guide includes information and credit recommendations concerning the Army Education Program.

Mention should also be made of publication of the excellent series of *GI Roundtable* pamphlets, dealing with topics deemed to be of greatest interest to service personnel. These pamphlets were prepared by the American Historical Association, well illustrated, carefully checked, are in attractive format, and were printed in quantities of 200,000 copies each.

VETERANS ADJUSTMENT

Probably in no instance was there more activity than in this one of educational programs for veterans. Veterans education is essentially adult education and the instructional program, methods of teaching, and facilities should be adapted to the needs and experiences of veterans. There are two categories under which veterans seeking education and training fall, although most all veterans with 90 days or more of service are entitled to education and training, either under Public Law 16 or Public Law 346. Veterans under P. L. 16 are those whom the Veterans Administration decides have vocational handicaps and thus entitled to vocational rehabilitation under its provisions. By far the larger number of veterans eligible for education and training are those eligible under P. L. 346. Veterans under P. L. 16 are required to participate in an advisement and testing service established by the Veterans Administration through the facilities of institutions of higher learning. The veteran under P. L. 346 is not required to avail himself of such services but he is being urged to seek analyses of his own ability and to understand vocational opportunities lying ahead before undertaking education or training. By following such procedures veterans can avoid selection of programs which they have little chance of completing; of entering programs for which their abilities are not suited; and of selecting vocations in which there is not so much chance of overcrowding.

Many agencies sprang to work on this post-war problem. In many cases the need arose in communities for coordination of the efforts of these many agencies. The National Education Association called a work conference in February 1945, following which it issued a comprehensive bulletin *Educational Programs for Veterans.* Other bulletins appeared; *Community Adult Counseling Centers* by the National Vocational Guidance Association; *Data for State-wide Planning of Veterans Education* by United States Office of Education; and *Veterans Guide* by the Public Affairs Committee. The Institute of Adult Education at Columbia University issued the third of its series on personal adjustment of veterans, *Adult Adjustment.* Many similar publications appeared.

It was almost universally agreed that, if the returning veteran is to be successfully reintegrated into civilian life, that process must take place at the community level. Notable jobs in this respect were done in a number of communities such as Bridgeport, Conn. There, in a community of 250,000 persons, community groups joined to set up such a service. The work was done under 30 cooperating committees representing different phases of the community's life. There were committees of labor (representing the 57 locals), of education, of lawyers, of religious leaders (120 priests, rabbis, and ministers), insurance men, of veterans organizations, and others. Each committee's chairman served on a reemployment and veterans advisory committee for the city. A house in central Bridgeport was purchased and became the Community Advisory Service Center. It was headed by a highly trained director. The staff included vocational counsellors, educational advisers, social workers, and psychometrists. These advisers endeavored to discover the individual's problems of adjustment and stood ready to give complete information on community resources. Besides these, the Center housed many other expert counsellors, either paid or unpaid, to advise on problems of insurance, finance, dietetics, law, psychiatry, and a host of others. Similar organizations were being attempted in many communities over the country with varying degrees of effectiveness.

Rhode Island set up a state committee on veterans retraining and reemployment. The function of the committee was to establish and to coordinate local centers for counselling. Since volunteer counsellors were used it was obviously necessary to give them some training. To achieve this end the committee asked the division of general college extension of Rhode Island State College to organize and conduct a specific course designed to provide volunteer counsellors with such training. Accordingly a 36-hour course in three parts was outlined. Hartford, Conn. established a Veterans High School, in December, 1944, with both day and evening sessions. Classes were segregated from regular high school classes, and the administration of the program was in charge of a director of adult education.

The Massachusetts Department of Education inaugurated an educational program for veterans under the auspices of state teachers colleges and The Massachusetts School of Art, with a state grant of $44,220. Cleveland's Y.M.C.A. Fenn College conducted a special workshop on veterans counselling for industrial personnel staffs. The New York State Vocational School in Troy was converted into a state-operated vocational school for veterans under the supervision of the New York State Education department. The first regional school for veterans guidance counsellors was held by the Veterans Administration at The Pennsylvania State College; subsequently such regional institutes were conducted elsewhere.

These developments represented only a few moves in this field but they were typical of what was taking place all over the country. The millions of returning service personnel represents not only a challenge in adult education; it is a crisis for public education in America. Returning servicemen will not and can not sit in school with the children of America. Obviously their experience and maturity demands adult methods of teaching. Finally they will expect and demand that their education be functional in terms of their problems of vocational, home, and civic adjustment.

WAR TRAINING PROGRAMS

After five years of great activity, the vast government-sponsored war production training programs came to an end on June 30. Broadly speaking, since the founding of these programs as an emergency measure in 1940, this vocational project under the direction of the United States Office of Education trained 12,000,000 men and women for war jobs at a cost of $500,000,000. By way of comparison, only 60.000 war workers were trained in public vocational schools during the First World War. The program, designed to prepare civilians to play a greater role in the war effort, operated on two levels.

The program at the college level was the Engineering, Science, and Management War Training Program. Participation was limited to colleges and universities granting degrees in one or more of the four fields designated, and a total of 238 institutions participated. These institutions offered courses not only on their own campuses but wherever in their locality war industries had a need for college level training. Instruction was carried on in over 1,000 cities, frequently in the plant being served. Classes were conducted at any hour of the day or night that would best suit the convenience and working hours of trainees. At the close of the program 42,568 classes had been operated with an enrollment of 1,795,625 trainees. Enrollment in the four fields was as follows: engineering 1,337,134; production supervision 387,238; chemistry 38,838; and physics 32,415. Six per cent of the trainees took courses which occupied their full time for a period of from six to 15 weeks in preparation for employment. The other 94 per cent of the trainees were largely composed of persons already employed in war industries who took part-time courses for preparation for more responsible positions. Congressional appropriations for carrying on this phase of the war production program totaled $94,500,000. In all 282,235 women, 14,315 veterans, and 25,158 Negroes entered the program. From all indications they proved eminently satisfactory. Persons with all types of backgrounds registered for these courses and in turn found themselves in one job or another where they could contribute to the war effort.

Statements from industrial executives indicated the great value of this program. With specialized training vitally needed in war industry, it greatly expedited war production. The program definitely proved that colleges and universities had a real contribution to make in the field of vocational training and that such training for adults could most feasibly be offered by extension. Funds available made it possible to bring the best training resources to the program, and its outcome indicated that university extension could also serve in peace-time industry, particularly where war workers would find it necessary to reconvert to peace-time jobs.

Greater numbers also registered for the vocational war training program at the high school level. Classes were actually operating in a number of states less than a week after the National Defense Training Appropriation had been approved by the President. Such a feat was possible owing largely to the cooperative relationship built up since 1918 between state and Federal vocational education agencies. Enrollment was in pre-employment training and in supplementary training courses. The supplementary courses provided intensive training for payroll jobs of persons who were already employed in war industries with the idea of increasing worker effectiveness in present jobs. In the five years from July 1, 1940 through June 30, 1945, a total of 7,469,506 persons registered for these courses, of which 2,667,449 persons registered for pre-employment training and 4,802,057 for supplementary courses. The greatest enrollment was for the aviation service, machine shop, and shipbuilding courses. Of the total trained 1,501,453 persons were women and 369,492 were Negroes. The training was given in more than 2,600 training centers, and appropriations totaled $326,900,000 for training during this period. The number of persons trained in California, Illinois, Michigan, New York, Ohio, Pennsylvania, and Washington comprised over fifty per cent of all trainees.

STATE ACTIVITIES

In some instances states began to take action looking toward state programs of adult education. The best known of such plans was in Michigan. There the legislature appropriated $250,000 for 1944-45 for an experimental program. Encouraged by the results, the legislature renewed the appropriation of $250,000 per year for the 1945-47 biennium. The experiment was established to assist communities to develop programs of their own design. The university and the state colleges received liberal grants which they were urged to use for off-campus service in helping communities. Neither the state department of public instruction nor the colleges imposed any blueprint on communities. Various institutions were assigned varying responsibilities. The motivating agency in this action was the Michigan Council on Adult Education in which was represented all agencies of the state making a contribution to the education of adults.

In South Carolina, ten Citizens' Education Centers, enrolling 2,000 persons, were in operation. These centers featured courses, panel discussions, forums, lectures, special skits and music, all planned to help adults at every educational level. Establishment of a system of adult education in the state of Washington was sought in a measure submitted to the legislature with an appropriation of $300,000 requested. The legislation would create an 11-member state adult education board and set up the position of a director. The proposed program would promote public forums, study clubs, discussion groups, community institutes and little theatres, lecture and lyceum services, and establishment of a packet lending library service which would furnish pictures, movies, records, and books. A similar bill was before the Colorado Legislature sponsored by several adult education groups in that state. It would appropriate $200,000 for the biennium and subsidize adult education in the local school district.

In several states, state officers in charge of adult education were being appointed. The first report of the director of adult education in New Jersey appeared during the year. California had a most extensive program in operation. In New York, a new formula allocating state aid in education made an additional $700,000 available for adult education purposes. The supervisor of adult education in Virginia reported a pronounced trend toward community organization for work on local problems. An interesting state plan for adult education was one proposed in Vermont by the post-war planning committee for Vermont colleges and junior colleges. The plan called for community programs controlled by local community education councils and emphasized autonomy of the local community as the basic principle to be followed, and also recommended the appointment of a full-time state director or coordinator of adult education. The supervisor of adult education in Connecticut reported 13,481 registrants in 1944-45 in 25 towns.

COLLEGES AND UNIVERSITIES

Colleges and universities are well equipped from the standpoint of resources to carry on adult education; yet institutions of higher learning have wavered between the theoretical and the practical, always hesitant to undertake a broadly conceived off-campus program for the public good. Land-grant colleges in particular were originally organized in each state as "peoples colleges."

Many institutions, nevertheless, are beginning to realize that universities should go to the people. This is evidenced by many typical developments. Syracuse University and the New York State Citizens Council scheduled a New York State Institute of Community Service for July 2-14. Iowa State College joined with other agencies in sponsoring a one-day guidance and adult education workshop. The University of Colorado offered a battery of courses preparing specialists for counseling work. The University of Tennessee cooperated with the Federal Bureau of Investigation in offering a police-training school. Rollins College offered accelerated courses for adults in Spanish at its inter-American center. Michigan College of Mining and Technology registered 900 men and women in the upper Michigan peninsula. Indiana and Butler universities announced the pooling of their resources in the Indianapolis area to meet the increasing demand for adult education. The University of Virginia continued its *New Dominion Series* of pamphlets dealing with cooperative efforts in communities. The University of California offered an expanded service to secondary schools of over 60 courses by means of supervised correspondence study. The University of Colorado initiated a series of community forums in six or eight rural communities, and the University of New Mexico conducted a series of six one-week institutes for the purpose of training rural community leaders. Many institutions opened new extension centers in their respective areas of service.

The University of Denver conducted its eleventh summer institute on parent education. The Pennsylvania State College resumed its technical institute activity on an expanded basis in leading industrial cities of the state. Five-year evening school curricula were offered in engineering, business, and the professions. Immediate expansion of the University of Missouri's facilities for adult education was being planned. A division of community services was established at Temple University. The Center for Continuation Study at the University of Minnesota was host for refresher training courses for physicians who had been in military service. Rutgers University resumed its evening engineering program after a four-year cessation. The University of Minnesota extension division issued an attractive 90-page study guide in its program of improved race relations. The Regents of the University of Washington declared that, as the result of their experience with the ESMWT program, they found not only great need but a substantial demand for supplementary adult education at the college level. A Division of Adult Education was established, and it was anticipated that its program might take the form of institutes of a week's duration in communities throughout the state.

Many institutions offered general professional training in adult education during the 1945 summer sessions. The Institute of Public Safety at The Pennsylvania State College, operating under a grant from the Automotive Safety Foundation, cooperated with each of 18 other colleges and universities in all parts of the United States in offering one-week institutes for the training of supervisors of commercial vehicle fleets. The University of Texas carried on an experimental community workshop in Medina Valley in which leaders of various communities were called together to discuss their social, economic, religious, recreational, and other community problems. Other institutions carried on such workshops in community education and leadership. The Pennsylvania State College continued its community workshops for county groups. Stanford University conducted a workshop on its campus for community leadership. Educational journals carried articles dealing with the backwardness of colleges in meeting demands for community adult education and the training of volunteer leaders.

The University of California conducted refresher courses for veterans in considerable numbers. Courses for practicing optometrists, dentists, physicians, and for other professional groups were also offered, as well as special institutes dealing with the various phases of adjustment of adults to post-war conditions. The University of South Carolina had a record 2,000 registrations for extension courses for teachers, and in common with many other universities cooperated in the war loan drive by distributing motion pictures. The University of Arizona had the largest enrollment in correspondence courses in its history and saw increasing demands for visual aids from schools. The department of adult education at Mississippi State College concentrated its efforts on preparing certified teachers to keep open the schools. Spring and summer workshops were organized in a number of communities each serving four or more counties. The University of Texas saw an expansion of its work in the field of distributive education and in trade and industrial education with a staff of 15 field workers in various aspects of that program. The University of Connecticut's extension activity experienced considerable growth with 13 extension centers being established. Purdue University in July announced the organization of a technical extension division charged with the responsibility of all extension activities except those specifically allocated to agricultural extension. Its Technical Institute program, launched in 1943, was expanded into a full-time day program with the beginnings of a permanent full-time staff. Demand for conferences, short courses, and other informal projects was limited only by the capacity of the university to organize such programs.

The University of Iowa carried on an extensive program of adult education using its radio station WSUI and also by means of 16 mm. motion pictures. West Virginia University began a modest program of extension work at the graduate level for credit. The University of Missouri offered short courses for water works operators in cooperation with the state sanitation commissioner. University College at the University of Chicago had remarkable success with two particular projects, one having to do with the training of business executives; the other with the giving of adults an opportunity to read and discuss the great books of Western culture. The University of New Hampshire, having placed all of its off-campus activities under one head, attempted to develop extension work of all colleges of the University on a par with that offered by the college of agriculture. Texas Technological College noted that extension class courses were again in demand in the cultural field where no demand was evidenced during the war. The Oregon State System of Higher Education, in common with many institutions, noted increasing demands for a study of Spanish, and 20 lectures by radio were offered in this subject at the University of Kentucky. In Oregon intensive courses in public health were offered in several communities. The University of Denver offered a number of evening classes on its "civic center" campus. University of Washington carried on a community forum program using faculty members full time.

WORKERS EDUCATION

Two surveys of workers education in progress appeared during the year. One was a study by the National University Extension Association entitled *University Extension and Workers Education*. The second was also a study of the interest and resources of universities in workers education. It was carried on by the American Labor Education Service. There was not yet a large amount of activity in the field. It seemed obvious, however, that if we are to build an economy designed to produce a large flow of consumer goods and maintain maximum employment at high wages we must soon agree to forego the luxury of continuing debate and conflict in this field. Not only was management training needed but it is obviously necessary that labor, too, must be guided by a wise and just leadership, aware of its responsibilities and having a new conception of its rights.

The extension service of the University of Michigan carried further its varied program of lecture-discussions, film forums, and courses related to union activities. A workers' education bureau was set up in Madison, Wis. as a demonstration of what a community could do locally to establish workers education on a firm basis. Registration at the California Labor School in San Francisco jumped from 100 three years ago to 800 persons at present. The New York State School of Industrial and Labor Relations got under way at Cornell University with a $200,000 appropriation for its first year.

Eighty-one students from 20 states attended a two-week summer school for office workers at Lake Forest College. The Philadelphia public schools initiated a program of education for union officers. Three hundred representatives of labor education, and management, attended the 15th annual Institute of Labor at Rutgers University.

The Workers Education Bureau of America carried on the publication of its monthly news letter which contains news of current developments in workers education. Its program of labor institutes was somewhat curtailed during the war period but despite restrictions institutes were conducted in California, Minnesota, Colorado, Iowa, New Jersey, Montana and Rhode Island. The Bureau worked particularly to expand the movement for cooperation with labor on the part of institutions of higher learning. The University of Chicago set up classes for trade unionists.

Mark Starr, Educational Director of the International Ladies Garment Workers Union, states: "During the war formal classes have decreased while activity programs and projects have increased. Our greatest stress has been upon classes for new members in the union and in the training of officers, paid and unpaid. We have cooperated with institutions of higher learning in providing facilities for trade union administrators and feel that this too is an important trend." The American Labor Education Service concerned itself with the problems of post-war planning, labor and government, race discrimination, the status of the white collar worker, full employment, labor's function in the community, and the extension of facilities for workers education. Its program included regional projects, conferences, field work, general advisory service, teacher and leadership courses, publications and residence schools.

AGRICULTURAL AND HOME ECONOMIC EXTENSION

Several changes in the plans and policies of the extension service were made during the year. Conferences have been scheduled more frequently with the objective of keeping extension workers informed on current research developments. At certain of these conferences the director invited in representatives of business, labor, education, the consumer and other civic interests so that their viewpoint could be presented on a common platform. These institutes at the Federal level served as pilot-type programs for state conferences.

The extension service also instituted a conference on the contribution of extension methods and techniques to the rehabilitation of war-torn countries. Conclusions of this meeting should provide a valuable source of information for sections of the world ravaged by war. Thirty agricultural and home economics extension trained persons have been sent as agricultural missionaries to China, the Philippines, and other parts of the world. The cooperative extension service also assisted in the training of agricultural students from numerous Latin American countries in extension methods, and 26 Chinese students received similar training.

Plans are being developed also for increased educational work in such fields as economics and public policy, marketing and distribution, and other socio-economic problems. Extension workers are being urged to make greater use of modern tools of education such as radio and educational motion pictures. Funds contributed by states and countries for cooperative extension work increased from $15,521,000 in 1940 to $21,141,000 in 1945.

LIBRARIES AND MUSEUMS

The American Association of Museums, with the continued backing of the Carnegie Corporation of New York, fixed its attention on post-war planning. The Association represents museums of art, science, history, and industry in the United States. Many museums were active in the field of adult education. The Buffalo Museum of Science, believing that hobbies will play an increasingly important role in post-war recreation, found a record enrollment in its autumn program of 21 such courses for adults.

Libraries worked to have adult groups use their collections. The Ohio legislature authorized an over-all survey of the library situation in Ohio asking for a report and recommendations in 1947. In the Tennessee Valley Authority area, regional library services were advanced significantly during the year. County library boards there utilized their contractual relationships with TVA to strengthen their program of library service. When TVA contracts expired, support for such increased library service was obtained from state appropriations. Many rural areas are now being served by bookmobiles and book depositories. Reports from all sections of the country show local libraries supporting adult education by supplying bibliographical material, appointment of adult education advisers, cooperating in community forum activities, assisting in citizenship training projects, compiling special book lists and collections, publishing adult study leaflets, promoting book reviews, circulating special packet selections and similar activities.

ADULT EDUCATION COUNCILS AND LOCAL PROJECTS

Adult education activities at the state level, referred to in an earlier section, do not give adequate details of the multitudinous and varied projects carried on by local councils and groups. It is possible only to list typical ones here. Baltimore's Adult Activities Council held an important conference on veterans education in October which contributed to the present functioning Veterans Institute. Similar conferences are being planned on "The Displaced Warworker" and on "Needs of Baltimore." The Adult Education Council of Chicago notes a consistent and steady growth in community organization and in citizen participation. The Council has published an excellent manual on community planning. The Adult Education Council of Cincinnati issues an interesting monthly bulletin *This Is Your Community* and publishes a directory of educational and cultural events in that city.

The Adult Education Council of Greater St. Louis, made up of 59 member organizations, publishes annually a *Directory of Adult Education Opportunities,* also a *Calendar of Program Events,* and will shortly issue an *Aerial Map of St. Louis and Vicinity* showing its educational, cultural, and recreational enterprises. The council serves organizations by recommending lists of speakers, sponsoring needed legislation, and serving the many other educational needs of adult groups. The Albany (N. Y.) Adult Education Council sponsors an annual series of discussions in leadership training meetings. The New York City Council sponsored a widely discussed meeting on "Public Adult Education." Philadelphia's famous Junto continued with a registration of thousands of persons. The Adult Education Council of Philadelphia began publication of *Philadelphia Adult Education News.* The Councils of Washington (D. C.), Denver, Schenectady, Boston, Phoenix, New Orleans, Honolulu, San Diego, to name but a few, carry on activities similar to these mentioned. Adult education councils representing larger areas functioned similarly.

An excellent up-to-date account of these council activities may be found in *The Inter-Council News Letter* published by The American Association for Adult Education.

PROFESSIONAL GROUPS

The National Education Association in 1945 expanded its services in the field of adult education by establishing this activity as a new division on the headquarters staff. The director of the new division will work in close conjunction with the NEA Department of Adult Education. The Department of Adult Education (NEA) grew steadily during the year in membership and emphasis in its programs was placed on veterans education. Those interested in the development of adult education issues in the past 20 years can profitably turn to the last annual report of the Director of the American Association for Adult Education.

The Institute of Adult Education (Columbia University) has made an expansion in its studies of the motion picture film as a medium of adult education and its quarterly publication *Film Forum Review.*

PUBLICATIONS AND AIDES

Excellent pamphlets continue to be published by various organizations which can well be used by adult study groups. Many of these pamphlets are listed in current issues of the *Adult Education Journal* and the *Adult Education Bulletin.* The American Library Association and the American Association for Adult Education and other groups issued pamphlets bearing on the use of films for film forum projects. It is evident that FM radio broadcasting can have educational uses which are not now appreciated. Connecticut and Pennsylvania have plans for state systems while a number of cities are planning for the use of FM channels locally. Cleveland, Chicago, and San Francisco are already using radio for classroom instruction on an extensive basis. The whole project is adult education on the upper level. Educators requested 15 FM channels in hearings before the Federal Communications Commission. Instead of 15 channels they were granted 20 which allocation should permit establishing about 800 educational radio stations which if properly spaced could blanket the United States.

Commercial stations have outdone themselves in many respects in educational endeavors despite much popular resentment over so-called "commercials." The CBS program "School of the Air" and NBC's "University of the Air" are excellent features. In its 16th year, the CBS School was this fall moved to five P.M. (ET) in order to permit grownups to hear it and also to allow parents and children to listen together. Other public service broadcasts of note include talks on books, science, national affairs, forums and many special events.

NEGRO EDUCATION

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GENERAL

Liberal leaders throughout the South took an aggressive stand during 1945 on the question of equalizing educational opportunities for all American Negroes through Federal aid to education and spoke out vigorously in favor of improving institutions that deal with problems of higher education for Negroes.

Northern leaders in education, both white and Negro, favored coordinated educational programs to assist Negro veterans and war workers who must return to home communities that have been vastly changed by the effects of the Second World War.

Race relations, despite many tensions, tended to improve through numerous group conferences that were held to discover true facts, and, in the light of sound information, leaders formulated new and better plans of Negro education.

The General Education Board and the Julius Rosenwald Fund continued throughout 1945 their far-sighted and well-planned programs that have aimed to train effective and responsible Negro leaders in the life of the nation—in education, health, civic improvement, scientific research, economics, and racial cooperation activities.

Southern states recognized more fully than ever before their responsibility for Negro education, particularly on the higher levels. With real courage and foresight, white leaders conferred with Negro leaders to find out more specifically what should be done through education to raise the level of Negro efficiency in the American way of life.

Negro leaders spoke more clearly and incisively their convictions concerning the educational limitations and capabilities of the 13,000,000 Negroes whom they represent.

The emphasis in Negro education during 1945 was definitely on higher education, but always the present-day Negro leaders kept one foot on the ground in calling for more and better elementary, secondary, and vocational schools.

The workshop idea in education was worked hard by several of the leading institutions for the higher education of Negroes. This idea, one may hope with good reason, will bring rich fruits in the coming years.

FEDERAL AID

At the New England Association of Colleges, Universities, and Secondary Schools, Frank P. Graham, president of the University of North Carolina, made a vigorous plea for Federal aid to education (*School and Society*, Jan. 27). At *The New York Times* conference on education, held in January 1945, Mordecai W. Johnson, president of Howard University, urged a Federal program that would lift Negro education to higher levels. He contrasted the costs in education—whites in New York, $6,000 per classroom per year, Negroes in Alabama, less than $100 per classroom. President Johnson presented figures showing that 1,100,000 Negro children did not attend school at all, while in 15 states, in which 1,900,000 Negro children live, there were no four-year high schools. Out of 9,000,000 Negro Americans in 18 states, there are

30,000 candidates for high-school graduation.

Benjamin Fine (*The New York Times,* Jan. 29) summarized the objections to Federal aid presented at the Conference as follows: "It would mean Federal control; it would cause regimentation; it would upset the American democratic way of life; it would force wealthier states to pay for the education of the poorer ones; and, finally, Federal aid is unnecessary." White and Negro leaders have heard these objections repeated many, many times, and still believe that Federal aid will definitely improve the status of 13,000,000 American Negroes.

EDUCATIONAL PROGRAMS

Dr. Anson Phelps Stokes, president of the Phelps-Stokes Fund (New York), discussed "American Race Relations in War Time" paid a tribute to the General Education Board as the organization that has done as much as any for the Negro (*Journal of Negro Education,* Fall 1945). Raymond B. Fosdick in his annual report for 1944 disclosed that the Board had made new appropriations of $3,073,976, roughly two-thirds of which was for the advancement of Negro education.

GENERAL EDUCATION BOARD CONFERENCES

The Board financed four regional meetings to study the problems of graduate education for Negroes during the summer of 1945—Durham (N. C.), Nashville (Tenn.), Jackson (Miss.), and Prairie View (Texas). A fifth meeting was held in Birmingham (Ala.) on Oct. 29. At these meetings, Negro and white educators worked amicably and frankly together, each group presenting and interpreting the data pertinent to each region and to the South in general.

The Conference members were faced with the great discrepancy which exists in opportunities for and support of graduate work in Negro institutions as compared with the white colleges and universities; the lack of doctoral curricula in Negro institutions; the meager facilities for study leading to the Master's degree; and the lack of library facilities in Negro higher institutions.

The Birmingham meeting adopted the following resolutions: (1) Every properly prepared graduate student, white or Negro, should have access to competent graduate instruction; (2) We recognize that the graduate programs available for Negroes are far from adequate; (3) We recommend that the compensation for Negro instructors be the equivalent of that for white instructors of equal attainments; (4) We favor the development of strong regional graduate schools in which special interests may be emphasized. . . . For the Negroes, regional centers seem to offer . . . the most immediate and effective relief; (5) As a temporary expedient, we favor for Negroes out-of-state aid in the form of scholarships; (6) We have also been favorably impressed with the qualities of educational leadership evinced by the Negro educators who attended these Summer meetings (*School and Society,* Jan. 5, 1946).

ELEMENTARY EDUCATION IN VIRGINIA

In 1943-44, there were 1,474 Negro elementary schools (white, 1,928) and 120 high schools (white, 456). For 1939-40 there were 1,639 Negro elementary schools (white, 2,278) and 126 high schools (white, 498). In short, the median Negro elementary school has about 32 pupils; the median Negro high school has about 80 pupils. What can be done for such small schools is the problem that Virginia educational leaders are trying to solve through a program of school consolidation. F. G. Lankford, Jr., associate professor of education at the University of Virginia and director of instruction for the schools in Albermarle County, estimated that Virginia would be required to spend some $50,000,000 to carry out an adequate and statewide consolidation program for its present 3,402 elementary and 576 high schools (*University of Virginia News Letter,* Dec. 1). Therefore, before Negro education in Virginia can be improved greatly the whole problem of public education must be refinanced.

ELEMENTARY EDUCATION IN NORTH CAROLINA

Grade enrollments in Negro public schools are still exceedingly out of balance. The following figures for North Carolina, 1943-44, are significant of Negro schools in general, although the figures are localized: Grade one, 53,253; two, 32,561; three, 31,939; four, 29,396; five, 25,300; six, 22,152; seven, 19,040; elementary special, 240; eight, 15,080—total, 228,961; nine, 11,323; ten, 8,608; eleven, 6,601; twelve, 2,092; high-school special, 27—total, 28,651; and grand total, 257,612. Of 1,000 Negro pupils who entered the first grade of North Carolina schools in 1933-34, some 405 reached grade two; 363, grade three; 332, grade four; 284, grade five; 257, grade six; 216, grade seven; 176, grade eight; 126, grade nine; 100, grade ten; and 77, grade eleven—and of this number 58 were promoted from grade eleven. Of 1,000 white pupils, some 238 were promoted from grade eleven (*State School Facts,* March, 1945).

The number of Negro pupils enrolled in the first grade of North Carolina schools for 1943-44 was 52,253 which represented an excess of 28,606—or a 116.1 per cent excess enrollment over births. This figure in 1924-25 stood at 308.1 per cent and in 1934-35 at 257 per cent. The percentage of pupils who remained in the first grade dropped from 64.2 in 1927-28 to 42.3 in 1942-43. For Negroes in the first grade the survival has changed from 35.8 per cent in 1927-28 to 57.7 per cent in 1942-43. Some 46.2 per cent of Negro pupils remain in the first grade (white, 14.6). In short, Negroes are sending more and more of their children to the first grade; they are helping their children to a better school adjustment; and they are more concerned than in former years with cooperating agencies for school and community improvement.

There has been a tendency for the number of Negro elementary schools to decrease. The figures for North Carolina are typical of the South: 1939-40, 2,063; 1940-41, 1,979; 1941-42, 1,911; 1942-43, 1,879; and 1943-44, 1,852 (*State School Facts,* Dec.). This downward trend is also characteristic of white elementary schools.

SECONDARY EDUCATION

Negro high-school students, in terms of scholastic work, show better accomplishment in city schools than they do in county schools, according to North Carolina figures (*State School Facts,* Sept.) which follow: Negro high-school students, 1943-44, grades 9-12, 26,046 for the State (city units, 10,999; county units, 15,047); city units, percentage doing full year's work, 85.64 (county, 82.31), half-year's work, city units, 7.86 (county, 8.23), less than half year's work, city units, 6.50 (county, 9.46; index of accomplishment, city units, 91.19 (county, 88.79).

Fifty Negro administrators from high schools in 13 states held a workshop at Dillard University (New Orleans) and discussed "Problems and Opportunities Confronting Negro Youth." Nearly half of the Negroes between 18 and 38 have seen military service. Some 700,000 Negroes in the South were in the armed forces. Large numbers wish to finish high-school training under the provisions of the GI Bill of Rights. Thousands of Negroes will need educational guidance when they return to civilian life. The Negro high-school principals explored four major fields—economic and social readjustments of returning veterans; professional opportunities; opportunities in business and in industry; and adaptation of curricula to the needs and talents of Negro youth.

RURAL EDUCATION

Negro colleges and universities continue to make a serious attack on the problem of Negro rural education. Prof. Mabel Carney (*Journal of Ne-*

gro Education, Fall 1945) summarized the work in Negro rural education which is being done at Howard, Fisk, and Atlanta universities for the benefit of rural-education leaders, school teachers and supervisors, graduate students engaged in workshop discussion conferences, and special community workers, such as Jeanes supervisors, health, recreation, and youth organizers. Professor Carney also paid tribute to the constructive work of Hampton and Tuskegee for the training and improvement of leaders in Negro rural education.

There were in Virginia, according to the *Annual Report* of the Superintendent of Public Instruction, 1944, 1,552 one-teacher schools—847 for Negro pupils and 705 for white pupils. Seven grades were taught by one teacher in each of 884 of these schools. In 297 of the one-teacher schools, there was an enrollment of 40 or more pupils. The one-teacher school has been held as definitely inferior to any other type of school with respect to educational efficiency. The mean per capita cost of salaries for cities was $76.79 (counties, $43.37); cost of education per pupil, not including debt service and capital outlay, for the cities was $161.92 (counties, $62.27). In one county the cost of education per pupil was as low as $35.05. A large percentage of the Virginia population received its education in rural schools. In short, Virginia's rural schools have been educating a large proportion of the citizens in its cities. Negro pupils have been and still are at the low end of all the educational scales (H. M. Jarman, *University of Virginia News Letter,* Nov. 1, 1945).

North Carolina also faces the problem of one-teacher rural schools. For the year 1943-44, this state had 807 one-teacher schools in county units—Negro, 603 (white, 204). In contrast there were only 58 Negro schools with 10 or more teachers (white, 403). In North Carolina Negro elementary schools have decreased from 2,339 in 1930-31 to 1,852 in 1943-44, white, from 2.897 to 1,660 (*State School Facts,* Dec. 1945).

HEALTH EDUCATION

Virginia's Negroes have infant, maternal, and general death rates much higher than the white population, according to Leland B. Tate of the Virginia Polytechnic Institute. In 1940 urban Negroes had an infant death rate of 90 per 1,000 live births (white, 42). Midwives attended about two-thirds of the rural Negro births and one-third of the urban, but only a small percentage of all white births.

Venereal infection is from 10 to 15 times as high for Negro pre-marital partners as for white couples. The Negro tuberculosis death rate was 3.5 times the white rate. The expected life span for Negroes is at least 10 years less than the expected 60 or more years for white persons. There are fewer than 200 Negro physicians and only 150 Negro nurses in Virginia to serve some 661,000 Negroes.

Only six of Virginia's 112 hospitals and sanitoriums are full-fledged service centers for Negroes—Central State Hospital (Petersburg), 3,521 beds for mental patients; State Colony (Petersburg), 300 beds for mental patients; Piedmont Sanitorium (Burkeville), 269 beds for tuberculosis patients; Dixie Hospital (Hampton), 91 beds for general patients; Whittaker Memorial Hospital (Newport News), 44 beds for general patients; and Burrell Memorial Hospital (Roanoke) 44 beds for general patients.

Slightly more than one-third of the beds in state-supported sanitoriums are for Negroes and almost one-third of the beds in city sanitoriums. The ratio on the basis of population groups appears equitable, but on the basis of Negro need it is dangerously low.

The Negro education study committee of the Denny Commission in Virginia, late in January, suggested the training of Negro nurses at the Medical College of Virginia located at Richmond.

A committee, headed by Dr. J. Earl Moreland, president of Randolph-Macon College, recommended (1) that the inadequate provisions now being made for the professional education of Negroes be corrected in the fields of pharmacy, nursing, law, and social work, and (2) that Virginia use its present facilities in professional schools for the training of all students who desire professional education (Newport News, Va., *Daily Press*, Jan. 27, 1946).

EDUCATION OF VETERANS

It has been estimated by the Veterans Administration that at least 1,000,000 Negroes who have served in the armed forces will have to find reemployment. Of this number some 700,000 will come from the South and about 70 per cent fall in the farm group. Since many Negro veterans will not return to the South or even to the farm, literally many thousands of Negroes will have to use their new skills and new freedoms outside the Southern farm economy.

The GI Bill of Rights, it is expected by many leaders, will open doors that are now closed to Negroes. Industry, on the other hand, may be powerless, in the face of adverse community pressures, to undertake responsibility for dealing with tension over inadequate or insufficient housing, transportation facilities, educational opportunities, or blind prejudice that affect Negroes. The labor leaders, whether AFL or CIO, see in Negro veterans an important group worth cultivating. What the Negro veterans decide will greatly influence American life tomorrow.

During the Second World War, Negroes learned many new skills. The total Negro civilian employment increased by 1,000,000. Negroes did more important industrial work than they ever did in a non-war period of four years. They earned more money and lived better than they did prior to Pearl Harbor. In the Army and Navy, Negroes did whatever tasks were assigned them. "Some fought. Some flew planes. Some drove trucks. Some built roads. They did the numberless jobs of a war—their leaders point out—that was advertised around the world as a fight for freedom and democracy. They say they have earned the right to better treatment at home. . . . Most of the qualified generals and admirals have praised the work of the Negro soldier" (*United States News*, July 13).

The U. S. Office of Education sponsored a conference on "Postwar Education of Negroes" and through a grant by the Julius Rosenwald Fund published a 71-page report, late in December, which was edited by Dr. Ambrose Caliver, senior specialist in the education of the Negro. This report emphasized the educational implications of Army data and experiences of Negro veterans and war workers. The objective of this Federal conference was to assist major educational associations and educational institutions among Negroes to plan the collection, interpretation, dissemination of information pertinent to Negro veterans and war workers, as well as to promote a program of educational coordination among Negro and white leaders. Similar conferences, held on the regional, state, or local levels, have been recommended.

Some conclusions were as follows: (1) Negro veterans and war workers will need assistance in readjusting to normal peacetime living, because of the changes that have taken place in them and because of the changes that have taken place in their home communities. Because of the minority status of Negroes their problems will frequently be accentuated. (2) Negroes will have improved in educational advancement, in occupational skills, and in health status, and will have developed self-confidence, broadened economic contacts, widened social horizons, and will have expanded their concepts concerning both their rights and obligations as citizens of a democratic nation. They may be expected, therefore, to work more diligently for the realization of the aims for which the Second World War was fought. (3) Negroes will face many changes that have taken place in their home communities—social, economic, recreational, educational, and governmental. Numerous agencies, public and private, have been formed to assist veterans and war workers. These agencies must coordinate activities for Negroes so that there will be a minimum of duplication, confusion, and waste. (4) Negro schools and colleges are among the most important agencies which have a responsibility in initiating, prosecuting, and coordinating plans and activities for needed adjustments in the post-war period. These institutions at present are not adequately prepared to meet this responsibility. (5) Specific groups must minister to specific needs of Negroes—counseling, teaching, school and college administration, community improvement. (6) Improved race relations is largely an educational matter and, therefore, all good Americans should help to provide equality of educational opportunity for every citizen. (7) Those who fought together and won the victory learned to respect and appreciate each other.

HIGHER EDUCATION

Four-fifths of the total Negro population live in the 17 Southern states and the District of Columbia which require by law separation of the races for purposes of education, according to Prof. Charles H. Thompson, Howard University (D.C.), who is the editor of the *Journal of Negro Education*. He adds:

"Ninety per cent of the Negro students now in college and professional schools and between 90 and 95 per cent Negro college and professional school graduates are the products of separate Negro colleges and universities. . . . The overwhelming majority of Negroes obtain their higher and professional education in segregated schools and two-thirds of those who graduate remain in the South—or go South" (*Journal of Negro Education*, Fall 1945).

Negroes in 17 Southern states and the District of Columbia who have had four years or more of college, according to the Census of 1940, number 52,646 (1.08 per cent) *vs.* white 842,355 (4.72 per cent). The figures for the United States follow: Negroes 80,842 (1.2 per cent) *vs.* whites 3,067,783 (5.4 per cent).

The South in general, and the Negro population in particular, is dangerously short of professional workers in medicine, dentistry, and law, to mention only a few outstanding fields of public service. The South needs the leadership in community improvement that is furnished by professionally trained Negroes.

An index of education in the 17 Southern States and the District of Columbia is found in the following figures dealing with resident graduate students 1939-40: Negro, public institutions, 87 (white, 8,577), private 683 (white, 7,335)—total Negro, 750 (white, 15,912).

Professor Thompson (*Journal of Negro Education*, Fall 1945) called attention to the disparity between professional-school opportunity given Negroes in the South and members of the white race in the following figures which deal with institutions:

Profession	White		Negro	
	Public	Public and Private	Public	Public and Private
Medicine	15	16	0	2
Dentistry	4	8	0	2
Law	16	17	1	2
Engineering	17	17	0	1
Social Service	9	9	0	2
Library Science	11	13	1	1
Pharmacy	14	14	0	2

Prof. Martin D. Jenkins of Howard University (Washington, D. C.) listed 60 significant programs in operation in Negro colleges and universities through the cooperation of some 20 Negro leaders. These programs include the United Negro College Fund, Atlanta University System, Land-Grant College Social-Studies Project, Atlanta University-Urban League Study of Business and Business Education, Veteran Counseling and Training, National Student Health Association, Orientation Institute in Health Education, Graduate Work in State Institutions, Regional Conferences on Graduate Education Commercial Dietetics Curriculum, Teacher-Education Program, Personnel Program, Student Selection, Premedical Education, Inter-group Relations, Nursing Education, Public-Relations Program, and General Education.

The United Negro College Fund (New York) raised $1,030,000 during 1945 in the second annual national campaign in 45 cities, Thomas A. Morgan, chairman of the drive to assist 32 colleges, announced in October. The Greater New York City campaign committee, headed by Frank M. Totton, raised $330,203. The national foundations committee reported contributions amounting to $194,618. Industry contributed $300,000. Negroes gave $155,000. The general chairman of the Fund is John D. Rockefeller, Jr. Walter Hoving served as chairman of the executive committee. F. D. Patterson, president of Tuskegee Institute, is president of the Fund, and W. J. Trent, Jr., is executive director (*The New York Times,* Oct. 5).

Governor Darden of Virginia proposed in January 1945 that Virginia, North Carolina, and Tennessee pool their resources in a program of higher education for Negroes.

EDUCATIONAL COOPERATION

Alabama.—A movement for the improvement of Negro schools in Montgomery (Ala.), began in 1936, came to fruition in 1945. The improvements in Negro education were achieved with the whole-hearted support of the white citizens and they demonstrated that there is enough progressive sentiment among Southern people who have responsibilities of leadership to solve race relationships constructively, if they are permitted to do so without undue pressure.

In 1936 only a few Montgomery Negro teachers held degrees. This was changed to 53.6 per cent in 1945. Five out of seven principals of Negro schools hold master's degrees. Two junior high schools have developed into senior high schools that train hundreds of pupils. Inadequate school buildings have been replaced with two- and five-room modern structures. These new buildings receive constant repair and paint service. The school term has increased from six months to eight months. Free textbooks are furnished. Some salaries have trebled. Parent-teacher organizations are in operation. Democratic practices in administration prevail (*School and Society,* June 30).

Mississippi.—The board of trustees of the institutions of higher learning, Jackson, issued a 402-page report, *Mississippi Study of Higher Education 1945* (Joseph E. Gibson, director), which summarized in 30 pages the detailed development of Negro education. He found that less than one-half of the 2,180,705 people in Mississippi are Negroes, and that they are served by 10 small colleges. Important grants have been made to Jackson College by the Julius Rosenwald Fund and the General Education Board, which, with its limited facilities, is preparing Negroes through first-hand teaching experience for responsibilities as rural leaders. This college employs 24 regular and part-time instructors. It is estimated that Mississippi will need several hundred specially trained Negro teachers for its rural schools for the next few decades.

Virginia.—There is vast need of cooperation between white legislators and Negro leaders to secure adequate pay for Negro teachers. The salaries of Negro teachers for 1943-44 received careful study by G. Tyler Miller, president of the Virginia Education Association and superintendent of schools of Charlottesville (*University of Virginia News Letter,* Nov. 15). In the counties, 2,787 Negro teachers received an average salary of $878 (white, $1,087); in the cities, 1,222 Negro teachers received an average annual salary of $1,579 (white, $1,766). In the counties, 132 Negro principals received an average annual salary of $1,176 (white, $2,004); in the cities, 56 Negro principals received an average annual salary of $2,516 (white, $2,946).

Georgia.—Atlanta University during the summer conducted seven workshops for 250 Negro teachers seeking self-improvement in their regular school programs. The science workshop enrolled 36 teachers who discussed science in general education, science experiences for children, science in health programs, use of tools for research, reading problems in science, everyday science of the countryside, science and language, and problems of youth.

The language-arts workshop attempted to clarify the special difficulties which Negro teachers face and to evolve methods of attacking these difficulties. The topics follow: standards in English; cooperative efforts to improve English; remedial and developmental reading; oral reading; levels of English usage; the meaning of language; backgrounds of modern English; common speech defects; and English pronunciation.

The health-education workshop discussed these topics: programs for healthful living; communicable diseases; health instruction in elementary and junior high schools; and community sanitation. Cooperating sponsor of this workshop was the Georgia State Department of Health.

A third workshop was devoted to the improvement of local school programs. A fourth was devoted to the teaching of home-economics students. Another aided arts and crafts teachers. Still another was concerned with school supervision.

OPA CONFERENCE

In cooperation with the Office of Price Administration a conference on "Wartime Economic Stability and Postwar Prosperity" for Negroes was held at Hampton Institute on Aug. 6. John W. Davis, president of the West Virginia State College for Negroes and director division of research and analysis, President's Committee on Fair Employment Practice, was the principal speaker. The Conference concerned itself with finding out what school administrators in cooperation with other leaders and citizens can do to stabilize Negro economy, make effective educational programs, teach economic competency, and develop economic literacy among Negroes. William Mason Cooper, director of the Hampton Summer School, presided.

CONFERENCE OF SOUTHERN STUDENTS

The Conference of Southern Students was organized on April 15, 1945 at the University of North Carolina. It included representatives from 54 Southern colleges and universities, of whom 14 represented Negro colleges in the South. The conference passed several resolutions, including the following one: "There should be included (in the Charter of the United Nations Organization) an international bill of rights and privileges of all people regardless of race, color, creed, or national origin." One of the two students who represented the Conference at San Francisco during the charter deliberations was a Negro student from Meharry Medical College (Nashville, Tenn.). The Conference received national recognition and approval.

INSTITUTE OF RACE RELATIONS

The Institute of Race Relations which was held at Fisk University, sponsored by the American Missionary Association, brought together in July over 140 teachers, social workers, government personnel, and religious leaders, drawn from 27 states, for a three-week period during which 64 lecturers and consultants emphasized the importance of having a Federal racial policy to meet post-war problems and of striving for adequate legislation to meet the problems of racial adjustment. The employment of more Negroes in more of the gainful occupations was stressed. Negro urban development after the war, the elimination of Negro slums, the reclamation of human and material resources, and bi-racial development were topics that received full discussion. Dr. Edwin R. Embree predicted the end of racism and nationalism and the end of world domination by Western powers. "We shall be forced," he said, "to discover how diverse peoples and nations may tie together successfully in a shrinking world."

PUBLICATIONS

Some 750 references to books, bulletins, pamphlets, monographs, and periodicals dealing with the Negro and his problems, particularly the Negro and his education, were printed in four issues of the *Journal of Negro Education* for 1945. Some outstanding material on Negro education follows: *Adult Education for Negroes in the United States* edited by Charles H. Thompson; *Journal of Negro Education,* Yearbook No. XIV; *Color and Democracy* by W. E. B. DuBois (Harcourt); *Educational Programs for Veterans* (National Education Association); *One America,* edited by Francis J. Brown and Joseph S. Roucek (Prentice-Hall); *Riots and Ruins* by A. Clayton Powell, Sr. (R. R. Smith); *Planning for Postwar Education in the United States* by Susan O. Futterer (U. S. Office of Education); *Postwar Education of Negroes,* edited by Ambrose Caliver (U. S. Office of Education); *Primer for White Folks,* edited by Buklin Moon (Doubleday-Doran); *Religion in Higher Education among Negroes* by Richard I. McKinney (Yale University Press); *Rockefeller Foundation—A Review* by Raymond B. Fosdick (Rockefeller Foundation); *State-wide Planning for Veterans' Education* by E. V. Hollis (U. S. Office of Education); and *Statistics of the Education of Negroes* by David T. Blose and Ambrose Caliver (U. S. Office of Education).

LIBRARIES

By Mildred Othmer Peterson
American Library Association

DEMOBILIZATION AND POST-WAR PLANS

Since the end of the Second World War, librarians have begun to put in motion post-war plans formulated during the past several years. Detailed national plans for library development were made in March 1945 and presented in December 1945 to the midwinter Council meeting of the American Library Association. Favorable action had previously been taken by the Council, approving, in principle, standards for public school, prison, hospital, and college libraries (see 1944 THE AMERICAN YEAR BOOK, "Libraries"). A supplementary statement on standards of support for public libraries providing school library service was published in the *A. L. A. Bulletin* for March 1945 (p. 116). *School Libraries for Today and Tomorrow; Functions and Standards* (American Library Association) was published in 1945 as Number 5 in the series, Planning for Libraries.

There was considerable progress in state planning during the year, especially in Washington, Alabama, New York, Ohio, and Connecticut. In the last three named states, commissions are studying existing library conditions as a basis for statewide library development.

In all types of libraries, the demobilized war veteran and war worker were receiving special attention. Adult education services were developing, and techniques successful in army training programs or in the organization of library service for the armed forces were increasingly applied to civilian libraries (for further information on the immediate readjustments to peace in the library field see all 1945 issues of the *A. L. A. Bulletin, College and Research Libraries,* and *Library Journal*).

RELATIONS WITH FEDERAL AGENCIES

One of the main interests of the Library Service Division of the U. S. Office of Education and the Federal Relations Committee of the American Library Association was the proposed disposal of surplus war property to educational agencies such as libraries. The Surplus Property Act (Public Law 457) provides for priorities and special price concessions to educational institutions. They are being allowed a 40 per cent discount below the established fair value. The Division of Surplus Property Utilization of the U. S. Office of Education requested that each state designate or create a state educational agency for surplus property, which would allocate such property within the state. Libraries are allowed to procure surplus property: (1) through the state educational agency for surplus property; (2) through the regional offices of the Reconstruction Finance Corporation; and (3) through competitive sales. Included in surplus property are the Army camp libraries which will probably be distributed to communities as units, complete with equipment, catalogs, and books.

Considerable interest on the part of librarians was also manifested in the Educational Facilities Bill (H. R. 4499), which promises, "through aid to the states, for surveys of the need for public educational plant facilities, $5,000,000; for the preparation of drawings and specifications for such facilities, $40,000,000; and for their construction and acquisition, $1,500,000,000." Public libraries are included by definition, and it was estimated that library building would require $400,000,000.

During the year several projects were considered by the Joint Committee on Government Publications, representing the American Library Association, American Association of Law Libraries, Association of Research Libraries, and Special Libraries Association. This committee was formed in 1943 "to consider problems of publishing, of storing materials for distribution after the war, of acquiring public documents and expediting their acquisition, and related matters." The projects of the committee included the possibility of establishing an office in Washington to procure and distribute ephemeral material; a plan for distribution of processed (photomechanical) materials through the issuing agencies; the trial establishment of a weekly list of processed publications received in the office of the Superintendent of Documents; and the preservation and distribution of all restricted and confidential publications issued during the war.

EUROPEAN BOOKS FOR AMERICAN LIBRARIES

The American Library Association's Board on Resources of American Libraries and the Library of Congress have been interested in securing, for American libraries, European books which were not available during the war years. A delegation of librarians left for Europe on this mission late in December, 1945.

They are also interested in securing a more adequate representation of Russian books for American libraries. In this connection they have brought to the attention of the State Department the importance of negotiating with the Russian Government to secure interchange of cultural materials between the United States and Russia as a means of fostering better relations between the two countries.

NATIONAL RELATIONS OFFICE

Because of the growing need of a National Relations Office in Washington, librarians and friends of libraries collected in 1945 two-thirds of the funds necessary for its maintenance during the next four years, with a view to some subsequent permanent establishment. The office was opened in October 1945 "to advance and project the interests of libraries and of the people who use libraries, in so far as those interests may be helped or hurt by legislation, regulation, or other government action." The American Library Association, through this office, "will seek no advantage for itself, no special privileges for its members; it will work for the improvement of libraries as agencies for the dissemination of information, the diffusion and advancement of knowledge, and for the extension of library service to all of the people of the United States."

INTERNATIONAL ACTIVITIES

The challenge, the opportunity, and the responsibility of the relations of North American librarians with librarians in other parts of the world were more impressive in 1945 than ever before. The American Library Association administered funds from various foundations and government sources amounting to $895,000, spent for library activities in the international field. This amount covered numerous library projects in Latin America and war areas of Europe and the Pacific.

Carl M. White, director, Columbia University libraries, spent several months in London as library consultant for the United States delegation to the conference of Allied Ministers of Education. Luther H. Evans, appointed Librarian of Congress June 16, 1945, was a member of the American Commission to London for discussion of the international office of education and cultural cooperation. Carl H. Milam, executive secretary of the American Library Association, attended the United Nations Conference at San Francisco as a consultant appointed by the American Council on Education. In October, C. R. Sanderson, chief librarian of the Toronto Public Library, visited England with a delegation appointed by the Book Publishers' Branch of the Board of Trade of Toronto.

Operation of the American libraries in Mexico City, Managua, and Montevideo under the supervision of the American Library Association, has continued. Many Latin American librarians, as well as some from England, China, India, and other countries, visited North American libraries. Numerous students from foreign countries are studying in United States library schools (see *"Libraries"* THE AMERICAN YEAR BOOK, 1944).

At the request of the Minister of Education, three United States librarians went to Rio de Janeiro to advise in connection with the reorganization of the national library of Brazil. Library schools were conducted for the second year in Lima, Peru, and in Montevideo, Uruguay. The United States Department of State has continued to allocate funds for United States books for Latin America, China, the Philippines, and the near East. Rockefeller Foundation grants have continued for the purchase of scholarly and scientific journals to be stored in the United States for distribution to foreign countries when transportation is available. There are also Rockefeller grants for the purchase of outstanding books of reference and research for libraries in war areas.

American libraries, formerly operated by the Office of War Information, in London, Sydney, Melbourne, Wellington, Johannesburg, Bombay, Cairo, Cape Town and Lisbon have been transferred to the jurisdiction of the Department of State. New American libraries and reading rooms are opening from time to time under this program; some in occupied countries since the declaration of peace.

AMERICAN BOOK CENTER

In June, 1945, the American Book Center was established under the auspices of several national library associations in order to coordinate the efforts of groups interested in collecting gift books for war-damaged libraries of the Allied Nations. Early in 1946, the Center planned to conduct a drive for 1,000,000 printed items, including books, pamphlets, and documents. The British Library Association revealed that more than 1,000,000 books were destroyed by fire in German bombing raids on England, most of them in municipal libraries.

AMERICAN LIBRARY IN PARIS

International conferences and government missions gave many American librarians the opportunity for interchange of ideas with foreign colleagues. Milton Lord, librarian of the Boston Public Library, went to France to observe and report on conditions in the American Library in Paris, which remained in operation during the Nazi occupation. The library is now engaged in soliciting books and funds for an expanded program.

STATE AND LOCAL LIBRARY DEVELOPMENT

In 1945, the American Library Association Library Extension Board marked its 20th year of activity. It was established in 1925 "to consider what the American Library Association should do to assist in the development of adequate library service for people who are now without it." Through the years, it has been building a foundation of informal public opinion, particularly with national agencies. It has stimulated interest among librarians in new movements, such as, state planning or state aid for large units. It has provided encouragement, advice, basic materials, and information for individuals, groups, and organizations, working for the extension of this service.

According to a survey made, 96,920,941, or 74 per cent, of the people of the United States had public library service in 1945, compared with 60,640,723, or 57 per cent, in 1925. Thus, 26 per cent of the people were without public library service in 1945, compared with 43 per cent in 1925.

In 1925, 82 per cent of the total rural population were without public libraries. Today, omitting Alabama and Texas where separate figures were not available, 54 per cent of the rural population are still "have-nots."

During the 20-year period, cities over 10,000 population without public libraries, dropped from 49 to 39, and the largest city without one, from 60,000 to 39,000 population. The number of counties without a public library within their boundaries dropped from 1,135 to 587. State library extension agencies increased from 41 according to law (35 in actual operation) to 47, Arizona being the only one without such an agency. In 1925, 223 counties in 31 states had county library service, compared with 722 counties in 42 states in 1945.

Increasing momentum was indicated during 1945 by advances in legislation, appropriations, and the establishment of large unit libraries.

A survey of statewide public library service was started in New York in 1945 under the auspices of the research division of the state Department of Education and at the instigation of the State Library Association. In Ohio, the legislature established a library survey commission to study current library laws, financing, and services. It is to make recommendations regarding library interests to the next legislature.

ADULT EDUCATION

It is estimated that 25,000,000 adults will be interested in enrolling in adult education courses after the war, with interests divided primarily between vocational courses, professional and scientific study. Librarians working with adults are concerned, since the library as a source of informal education is the only institution available to many who wish to participate. The American Library Association Adult Education Board "reemphasized that continuing self-education is essential in a democratic society and that the library is potentially the best single source for informal self-education."

Rapid progress was made in the use of films for information, especially for adults, and for training during the war. If the country is to capitalize on new film uses, particularly in adult education, methods must be worked out to make films readily available in every local community, and this consequently becomes a potential library responsibility. A number of libraries already have film collections or serve as information exchanges. Some act as booking agencies, and many more each year are using films in educational forums and discussion meetings.

Librarians have been working on the problem of the distribution of educational films with the Educational Film Library Association and the National 16mm Advisory Committee to the O. W. I. Bureau of Motion Pictures. Extensive developments of film services in libraries are being considered. These include: plans for new buildings including rooms for previewing and auditioning films and records; plans for housing and distributing these materials, and for demonstrating their use; and film guidance, comparable to existing readers' advisory services, which most large libraries have.

HOSPITAL LIBRARIES

During the year, hospital librarians organized as a division of the American Library Association with the purpose of "promoting the establishment of libraries for patients and personnel in hospitals; furthering their better organization and administration; interesting public libraries and other agencies in extending library service to hospitals and advancing professional training for hospital library service." This group, through the American Library Association, sponsors the publication, *Hospital Book Guide.*

LIBRARY TRAINING AND PERSONNEL

A critical shortage in personnel and a general upward trend in salaries in industry greatly affected all personnel conditions in libraries during the final year of the Second World War. As in industry, library positions far exceeded the number of trained and clerical personnel available.

Several of the largest libraries adopted new salary schedules based on classification plans and a number of medium-sized and small libraries either revised their compensation schedules or originated new pay plans. Salary scales in business, industry, and government so exceeded those paid in most libraries that the latter were forced partially to meet this competition or lose large numbers of their personnel. In some libraries where budgets were small or where adjustments could not be made, it was necessary to curtail hours of opening.

Improvements in retirement allowances, vacations, and observances of public holidays have been achieved for library personnel in at least half of the states. Several libraries were placed under civil service during the year with the result that their staffs are able to obtain pension benefits available to other municipal employees.

Demands continued for additional librarians needed in work with the armed forces, in camps and hospitals. In addition, there were numerous opportunities for librarians in the Federal service and in war industries. Librarians with knowledge of science, technology, and business subjects were also in demand as were catalogers, childrens' librarians, and school librarians.

The salaries received by the 1945 classes in library schools again exceeded salaries paid 1944 graduates by several hundred dollars.

For the first time since 1940, when the decline in enrollments began, library schools throughout the country reported an increase in the number of students in comparison with the preceding year. Enrollment for the year in the 32 accredited library schools in the United States was 1,023, compared with 917 for the fall of 1943. In the two Canadian library schools, 41 students were enrolled in 1944-1945, whereas 25 attended the previous year. Since its founding in 1887, the School of Library Service, Columbia University, has had 3,261 graduates. The Library School, University of Illinois, established in 1893, has the second highest number —2,236.

SURVEYS AND STUDENTS

According to an American Library Association survey on reading in more than 100 public libraries, the average American civilian was reading about his own personal problems first and about the war and the state of the world second. The survey also showed that there was an increase in the circulation of books by libraries for the first time since the United States began to prepare for war.

Opinion Research Center made a study of public attitudes toward and awareness of public libraries in cooperation with the American Library Association and libraries in metropolitan areas. Results were published in the *American Library Association Bulletin* for November, 1945. In brief, it was discovered that 41 per cent of the people interviewed said that reading was a favorite way of spending spare time; among those interviewed, about 75 per cent were library users, though only 32 per cent were actual members. About one fourth get most of their books from public libraries. One in five uses public libraries; one in 20 uses rental libraries; one in 100 uses both. Forty-five per cent have no idea how public libraries are financed and another 23 per cent are uncertain. Ninety per cent think the public library is a valuable community asset, however.

The following reports on studies were published in the *Library Quarterly:* "The Reorganization of the Library of Congress, 1939-44", October, 1944; "Some Problems of Soviet Librarianship as Reflected in Russian Library Periodicals," and "Australian Books and American Readers," July 1945.

College and Research Libraries included: "Loan Clientele of State, University, and Land-Grant College Libraries", December, 1944; "New Periodicals of 1944," March, 1945; and "New Periodicals of 1945," September, 1945.

GIFT CITATIONS

Encouraged by substantial evidence that educational philanthropy has been stimulated by the citations established in 1939, the Board of Editors of *Who's Who In America* decided to initiate similar citations commemorative of gifts to American libraries. The donors singled out for citations and honorable mention in 1944-45 are: Mary Jane Harter Haymer to the Troy (O.) Public Library; Vida G. Jacks to the Monterey (Calif.) Public Library; Alfred Fuhrman to the San Francisco Public Library; James Chesterman Stodder and George Tyler Stodder to the Bangor (Me.) Public Library; Eugene Goldstein to the Plymouth (Penn.) Public Library; and Mrs. William Henry Bush to the Amarillo (Tex.) Public Library.

Many new "Friends of Library" groups were organized throughout the country. These with others already established are promoting new library buildings and county libraries, and raising money to purchase more books as well as helping to secure increased appropriations and legislation for statewide library service.

GRANTS AND BEQUESTS

During the year, the following private book collections and funds were given to libraries: to Stanford University Library, the Hutton Webster Folklore Collection; to the library of Southern Illinois Normal University, a Lincoln and American history collection donated by Clint Clay Tilton; to the University of Illinois Library, a 6,000 volume economics library from Janet Weston, in honor of her father; to the Minneapolis Public Library, $50,000 from the Citizens Aid Society; to Columbia University Library, a collection of classics and incunabula from the late Dr. Gonzalez Lodge; to The Free Library of Philadelphia, 17th century Shakespeare folios by P. A. Widener and Mrs. Josephine Widener Wichfeld; to Texas Christian University Library, deluxe limited editions of American, English, and French literature and history from Mrs. Goodall H. Wooten; to Muscoda, (Wis.), the library, home, and personal property of Dr. Charles R. Pickering; to the Tulsa Public Library, the Diggs library of classical literature and history by the Tulsa Jewish Community Council; to the University of Arizona Library, several thousand books, valued at over $10,000, from the Friends of the Library; to the Princeton (Ill.) Public Library, $10,000 from the estate of Alfred Norris; to the Montezuma (Ind.) Public Library, the library and art collection of the late Lula J. Case; to the Macalester College Library (St. Paul) the greatest collection of American hymnology in the United States from Arthur Billings Hunt; to the Library Association of Portland (Ore.) a bequest of income, amounting to about $2,500 a year for books, from the will of Thomas Roberts; to the Library of Congress, a Rockefeller Foundation Grant of $47,000 for the establishment of a Slavic Center; to the Youngstown Public Library, a $100,000 trust fund the income of which is to be devoted to the purchase of books, from the late Justice John H. Clarke; to the Forest City (Ia.) Public Library a $58,700 trust fund, the income of which is to be used for the purchase of books, from Mrs. Annie Russell; and to the Technological Department of the Carnegie Library of Pittsburgh, $66,195 from the Pittsburgh chapter of the American Chemical Society to supplement regular book funds.

FUNDS FOR BUILDINGS

Funds given for buildings include: to Newark (Ohio) Public Library, $27,500 under the will of Mrs. Jessie Clark Thomas; to Cairo (Ga.) Public Library, $35,000 by the Roddenberg family; to Kewanee (Ill.) Public Library, a $25,000 trust fund in memory of Edward Poole Lay; to the Jewell (Ia.) Public Library, $25,000 for the establishment of the E. W. Montgomery Memorial Library; to the Avon (Mass.) Public Library, $82,000 from the will of H. Lawton Blanchard; to Princeton University, $1,000,000 from the Firestone family toward a $3,500,000 Harvey S. Firestone Memorial Library; to the Elmwood (R. I.) Public Library, $100,000 through the will of Mrs. Sophie Knight Rousmanieve; to the Pomeroy (Wash.) Public Library, $10,000 from Mary Liggett; to Walla Walla (Wash.) Public Library, $20,000 by the will of T. C. Elliott; to Lake Geneva (Wis.) Public Library, $100,000 from Mrs. Mary Gridley Bell; to Bradley Polytechnic Institute, Peoria, (Ill.) $37,500 from Friends of the Library for a new library building; to the Birmingham (Ala.) Public Library, a residence and funds for a branch library from Dr. and Mrs. Thomas D. Parker; to Florence (Ala.) $25,000 from the Rosenbaum family plus $11,000 and local buildings from other individuals for a city-county library building and a bookmobile for rural service from the American Legion Post; to Baldwin-Wallace College, Berea, (O.) $152,000 from George W. Ritter for a library building; to Kahoka and Clark Counties (Mo.) $90,000 from H. E. Sever for a memorial library building; and to Dodgeville, (Wis.) $10,000 for a library building.

Throughout the war years, little new construction of buildings has been done but plans for buildings are being made by many libraries. The following are among those with funds available for buildings: Oakland (Calif.) Public Library, California Academy of Science, Paine College Library (Augusta, Ga.), University of Iowa Library, Forbes Library (Williamstown, Mass.), Cincinnati Public Library, and San Diego Public Library. Numerous war memorials will take the form of library buildings or book collections, including the national memorial to Ernie Pyle in Dana, Ind.

AMERICAN LIBRARY ASSOCIATION OFFICERS

For the year 1945-46: president, Ralph A. Ulveling, Public Library, Detroit; first vice president and president-elect, Mary U. Rothrock, Tennessee Valley Authority, Knoxville; second vice president, Emerson Greenaway, Enoch Pratt Free Library, Baltimore; and treasurer, Rudolph H. Gjelsness, University of Michigan, Ann Arbor.

MEMBERSHIP AND OFFICE

Over 14,000 librarians, library trustees, and individuals interested in library service are members of the American Library Association which was organized in 1876 to promote the foundation and improvement of libraries in the United States and Canada. American Library Association headquarters are at 520 North Michigan Avenue, Chicago 11, with Carl H. Milam, executive secretary. During 1945, the Association purchased an historic Chicago mansion at 50 East Huron Street which will become its headquarters when remodeling is completed. An International Relations Office is maintained in the Library of Congress Annex, Washington, D. C., with Harry Miller Lydenberg, director. A National Relations Office, operated by the Association, was opened in October, 1945, at 1709 M Street, N. W., Washington 6, D. C., under the direction of Paul Howard.

CONFERENCES

The usual summer and winter conferences were not held during the war. A midwinter meeting convened Dec. 27-30, 1945, in Chicago, and the annual conference is scheduled at Buffalo, N. Y., June 17-22, 1946.

ANNUAL AWARDS

Robert Lawson won the 24th annual Newbery Medal for *Rabbit Hill,* judged the best contribution to children's literature in the preceding year. The Caldecott Medal, given for the most distinguished picture book, was awarded to Elizabeth Orton Jones for the illustrations of Rachel Field's *Prayer for a Child.* The American Library Association citations of merit to library trustees were presented to M. M. Harris, president of the San Antonio (Tex.) Public Library Board, and Mrs. Albert W. Errett, president of the board of directors of the Public Library, Kewanee (Ill.) A third citation was awarded posthumously to a former trustee of the North Carolina Library Commission, Charles Wedbee, of Hartford. The 27th preson in the history of the American Library Association to be elected an honorary member was Halsey W. Wilson, president of the H. W. Wilson Company, who was honored in recognition of his "contribution to library efficiency and to every field where books and periodicals are used."

FINANCES

The Association's income in 1944-1945 (excluding cash balances amounting to $197,000 on Sept. 1, 1943) was about $1,133,800. Income from membership dues, sales of publications, advertising, subscriptions, etc., was approximately $223,700; $76,500 was income from endowment funds; $53,600 came from librarians for the establishment of the American Library Association National Relations Office in Washington; $188,000 was in payment of group retirement annuity premiums; and $592,000 came from outside sources in the form of grants or payments for 25 specific purposes. The endowment was about $2,110,000.

PUBLICATIONS

Five periodicals are published by the Association: the *American Library Association Bulletin, College and Reference Libraries, The Booklist, The Hospital Book Guide,* and *Subscription Books Bulletin.* The following are a few of its additional publications during 1945: *National Medical Library, School Libraries for Today and Tomorrow, Catalogers' and Classifiers' Yearbook #11, Buying List of Books for Small Libraries* (7th ed.), and *Books Published in the United States, 1939-1943.*

In the fall of 1945, The Association began the distribution of phonograph recordings of classic children's stories told by Mrs. Gudrun Thorne-Thomsen. This project is in cooperation with the American Library Association Division of Libraries for Children and Young People, which is interested in the preservation of fine examples of the storyteller's art.

Among the books in the field produced by other publishers were: Carnovsky and Martin (eds.), *The Library in the Community* (University of Chicago); Rider, *The Scholar and the Future of the Research Library* (Hadham); Lydenberg and Archer, *The Care and Repair of Books* (Bowker); Rankin, *Children's Interests in Library Books of Fiction* (contributions to Education #906, Columbia University); Hacket, *Fifty Years of Best Sellers 1895-1945* (Bowker); Davis, *Pictorial Library Primer* (Demco Library Supplies); *Frederic G. Melcher; Friendly Reminiscences of a Half Century Among Books and Bookmen* (Book Publishers' Bureau); Wilson and Tauber, *The University Library; Its Organization, Administration and Functions* (University of Chicago); Dewey, *Abridged Decimal Classifications* (6th ed., Forest); and Sears, *List of Subject Headings for Small Libraries* (5th ed., H. W. Wilson).

PERIODICAL PUBLICATIONS

Adult Education Journal
525 West 120th Street, New York City.

American School Board Journal
Bruce Publishing Company, 540 North Milwaukee Street, Milwaukee, Wis.

American Teacher
506 South Wabash Ave., Chicago.

Business Education World
270 Madison Ave., New York City.

Child Study
221 West 57th Street, New York City.

Clearing House
Inor Publishing Company, Inc., 207 Fourth Avenue, New York City.

College and Research Libraries
American Library Association, 520 N. Michigan Ave., Chicago, Ill.

Education
370 Atlantic Ave., Boston.

Education Abstracts
1201 Bluff St., Fulton, Mo.

Educational Administration and Supervision
Warwick and York, Inc., Baltimore, Md.

Educational Method
1201 Sixteenth Street, N.W., Washington, D. C.

Educational Record
744 Jackson Place, Washington, D. C.

Harvard Educational Review
Harvard Graduate School of Education, Cambridge, Mass.

Industrial Arts and Vocational Education
540 N. Milwaukee St., Milwaukee, Wis.

International Journal of Religious Education
203 North Wabash Ave., Chicago.

Journal of Business Education
512 Brooks Building, Wilkesbarre, Pa.

Journal of Education
6 Park Street, Boston.

Journal of Educational Psychology
10 East Centre Street, Baltimore.

Journal of Educational Sociology
32 Washington Place, New York City.

Journal of Engineering Education
Prince and Lemon Sts., Lancaster, Pa.

Journal of Experimental Education
University of Wisconsin, Madison, Wis.

Journal of Geography
3333 Elston Ave., Chicago, Ill.

Journal of Higher Education
Ohio State University, Columbus.

Journal of the National Education Association
1201 Sixteenth Street N.W., Washington, D. C.

Journal of Negro Education
Howard University, Washington, D. C.

Journal of Physical Education
Dayton, Ohio.

Junior College Journal
730 Jackson Place, Washington, D. C.

Library Journal
62 West 45th Street, New York City.

Library Quarterly
5750 Ellis Ave., Chicago.

National Parent-Teacher
600 S. Michigan Blvd., Chicago.

Occupations
425 West 123d St., New York City.

Parents' Magazine
52 Vanderbilt Ave., New York City.

Peabody Journal of Education
George Peabody College for Teachers, Nashville, Tenn.

Pitman's Journal
2 West 45th Street, New York City.

Progressive Education
221 West 57th St., New York City.

Religious Education
59 East Van Buren Street, Chicago.

School Management
52 Vanderbilt Ave., New York City.

School Review
5835 Kimback Ave., Chicago.

School and Society
Science Press, North Queen Street and McGovern Avenue, Lancaster, Pa.

Teachers College Record
Teachers College, Columbia University, New York City.

World Federation News
1201 Sixteenth Street, N.W., Washington, D. C.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

American Academy of Political and Social Science, 3457 Walnut Street, Philadelphia.

American Assn. for Adult Education, 525 W. 120th St., New York City.

American Council of Education, 744 Jackson Pl., N.W., Washington, D. C.

American Council of Learned Societies, 1219 16th St., N.W., Washington, D. C.

American Federation of Teachers, 506 S. Wabash Ave., Chicago, Ill.

Association of Land Grant Colleges and Universities, University of Kentucky, Lexington, Ky.

Association of Urban Universities, University of Pittsburgh, Pittsburgh, Pa.

Bureau of Educational Reference and Research, University of Michigan, Ann Arbor, Mich.

General Education Board, 49 W. 49th St., New York City.

National Congress of Parents and Teachers, 600 S. Michigan Blvd., Chicago, Ill.

National Council of Education, Teachers College, Columbia University, New York City.

National Education Assn. of the U. S., 1201 16th St., N.W., Washington, D. C.

National Research Council, Division of Educational Relations, 2101 Constitution Ave., N.W., Washington, D. C.

National Society for the Study of Education, 5835 Kimbark Ave., Chicago.

Public Education Assn., 745 Fifth Ave., New York City.

INTERNATIONAL

Institute of International Education, 2 W. 45th St., New York City.

International Council for the Education of Exceptional Children, 3 E. 25th St., Baltimore, Md.

International Council of Religious Education, 297 Fourth Ave., New York City.

Pan-American Educational Congress, Universidad de Chile, Cosilla 2543, Santiago, Chile.

TEACHERS

American Federation of Teachers, 506 S. Wabash Ave., Chicago, Ill.

Carnegie Foundation for the Advancement of Teaching, 522 Fifth Ave., New York City.

Educators Assn., Inc., 307 Fifth Ave., New York City.

Teachers Union of the City of New York, 13 Astor Pl., New York City.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

SCHOOLS

American School Citizenship League, 295 Commonwealth Ave., Boston, Mass.

Child Study Assn. of America, Inc., 221 W. 57th St., New York City.

National Assn. of High School Supervisors and Inspectors, State Department of Education, Columbus, Ohio.

National Assn. of Secondary School Principals, 1201 Sixteenth St., N.W., Washington, D. C.

National Congress of Parents and Teachers, 600 South Michigan Boulevard, Chicago, Ill.

National Kindergarten Assn., 8 W. 40th St., New York City.

Progressive Education Association, 221 West 57th Street, New York City.

Y.M.C.A. Educational Secretaries Assn., 55 Hanson Pl., Brooklyn, New York City.

COLLEGES AND UNIVERSITIES

American Alumni Council, Michigan State College, East Lansing, Mich.

American Assn. of Collegiate Registrars, George Peabody College for Teachers, Nashville, Tenn.

American Assn. of Junior Colleges, 730 Jackson Pl., Washington, D. C.

American Assn. of University Professors, 1155 16th St., N.W., Washington, D. C.

American Assn. of University Women, 1634 I St., N.W., Washington, D. C.

Association of American Colleges, 19 W. 44th St., New York City.

Association of American Universities, Yale University, New Haven.

Association of Colleges for Negro Youth, Fisk University, Nashville, Tenn.

Association of Land Grant Colleges and Universities, c/o Experiment Station, Lexington, Ky.

College Entrance Examination Board, 425 W. 117th St., New York City.

National Assn. of State Universities, Miami University, Oxford, Ohio.

National University Extension Assn., Indiana University, Bloomington, Ind.

New England Assn. of Colleges and Secondary Schools, Tufts College, Medford, Mass.

Phi Beta Kappa, United Chapters of, 12 E. 44th St., New York City.

Sigma Phi Society, 149 Broadway, New York City.

PROFESSIONAL EDUCATION

American Assn. of Teachers Colleges, State Normal School, Oneonta, New York.

American Educational Research Association, Teachers College, Columbia University, New York City.

American Medical Assn., Council on Medical Education and Hospitals, 535 N. Dearborn St., Chicago, Ill.

Association of American Law Schools, Ohio State University, Columbus, Ohio.

Association of American Medical Colleges, 5 S. Wabash Ave., Chicago, Ill.

Section of Legal Education, American Bar Assn., 1140 N. Dearborn St., Chicago, Ill.

Society for the Promotion of Engineering Education, University of Pittsburgh, Pittsburgh, Pa.

SPECIAL EDUCATION

American Association of Instructors of the Blind, Michigan School for the Blind, Lansing, Mich.

American Assn. to Promote Teaching of Speech to the Deaf, School for the Deaf, 1537 Thirty-fifth St., N.W., Washington, D. C.

American Humane Education Society, 180 Longwood Ave., Boston, Mass.

American Physical Education Assn., 311 Maynard St., Ann Arbor, Mich.

Engineers' Council for Professional Development, Committee on Engineering Schools, 29 West 39th Street, New York City.

National Assn. of the Deaf, 3633 E. Tremont Ave., New York City.

National Society for Crippled Children of U.S.A., 55 West 68th Street, New York City.

Religious Education Association, 59 East Van Buren Street, Chicago, Ill.

VOCATIONAL

American Assn. for the Advancement of Agricultural Teaching, Iowa State College, Ames, Ia.

American Home Economics Assn., 620 Mills Bldg., Washington, D. C.

American Vocational Association, 1010 Vermont Ave., N.W., Washington, D. C.

National Vocational Guidance Assn., 525 West 120 St., New York City.

Workers Educational Bureau of America, Machinists Bldg., Washington, D. C.

LIBRARIES

American Association of Law Libraries, Library of the Supreme Court of the U. S., Washington 25, D. C.

American Library Association, 520 North Michigan Avenue, Chicago, Ill.

Association of Research Libraries, The New York Public Library, 476 Fifth Avenue, New York City.

Special Libraries Association, 31 East 10th Street, New York City.

Note: For additional educational societies consult U. S. Office of Education, Washington, D. C.

NECROLOGY FOR 1945

Abbott, Right Rev. H. P. A., Episcopal Bishop of the Diocese of Lexington (Ky.), 63, April 4.

Achmed Abdullah, author, playwright, and adventurer, 64, May 12.

Adams, Herbert, sculptor, 87, May 21.

Adams, Col. Porter H., aeronautics pioneer and former president of Norwich University, 51, Dec. 5.

Agnelli, Giovanni, Italian automobile industrialist, 79, Dec. 16.

Ahmed Ziwer Pasha, former Premier of Egypt, Aug. 21.

Ainley, Henry, English Shakespearean actor, 66, Oct. 31.

Albee, Dr. Fred H., orthopedic surgeon, 68, Feb. 15.

Alger, Dr. Ellice M., ophthalmologist, a founder of the National Society for the Prevention of Blindness, 74, Feb. 18.

Alwin, Dr. Carl Oskar, former conductor of the Vienna State Opera and conductor of the Opera Nacional (Mexico), 54, Oct. 15.

Appleton, Robert, publisher, 80, Jan. 19.

Argentinita (Encarnacion Lopez), Argentine classical dancer, 47, Sept. 24.

Armetta, Henry, film character comedian, 57, Oct. 21.

Armstrong, Dr. Edward F., British chemical consultant and former president and chairman of the Royal Society of Arts, 67, Dec. 15.

Arosemena, Florentio H., former President of Panama, 72, Aug. 30.

Arundale, Dr. George S., president of the International Theosophical Society, 66, Aug. 12.

Aston, Dr. Francis W., British scientist and Nobel Prize winner in chemistry (1922), 68, Nov. 21.

Atherton, Frank C., civic leader and philanthropist in Hawaii, 67, May 29.

Atwood, Right Rev. Julius W., retired Episcopal Bishop of Arizona, 85, April 10.

Ayres, Philip W., social worker and forester, 84, Nov. 3.

Azariah, Right Rev. Vedanayakam Samuel, native Indian Anglican Bishop of Dornakai, South India, 70, Jan. 2.

Baker, Dr. S. Josephine, child health specialist, 71, Feb. 22.

Baldwin of Bewdley, Countess, wife of the former Prime Minister of Great Britain, June 18.

Balfour, Second Earl of, former M. P. and Chief Secretary for Ireland, 91, Jan. 14.

Barbier, George, stage and screen actor, 80, July 19.

Barlow, Sir Thomas, British physician, former physician extraordinary to Queen Victoria and Edward VII, 99, Jan. 12.

Barnes, William R., publisher and bookseller, 78, Feb. 8.

Barnet, José Agripino, former President of Cuba, 81, Sept. 19.

Bartok, Béla, Hungarian composer and specialist in musical folklore, 64, Sept. 26.

Bascom, Dr. Florence, geologist and author, 82, June 18.

Becker, Prof. Carl L., educator and historian, 71, April 10.

Beer-Hofmann, Dr. Richard, Viennese poet and playwright, 79, Sept. 26.

Beha, James A., insurance leader and former New York State Superintendent of Insurance, 65, Nov. 14.

Bell, Sir Charles A., British diplomat and author, 74, March 8.

Bellamann, Dr. Henry, musician and novelist, 63, June 16.

Benavides, Marshal Oscar R., military leader and former President of Peru, 69, July 2.

Benchley, Robert C., humorist, author, actor, 56, Nov. 21.

Bendix, Vincent, automotive and aviation inventor, 62, March 27.

Bent, Silas, author and editor, 63, July 30.

Bernet, Otto, art expert and dealer, 64, Oct. 14.

Berry, Dr. Edward W., paleontologist and former dean of the College of Arts and Sciences, Johns Hopkins University, 70, Sept. 20.

Berry, Dr. George R., Semitic scholar and archaeologist, 80, May 24.

Bertram, Adolf, Cardinal, anti-Nazi R. C. Archbishop of Breslau, 86, July 12.

Bibesco, Princess Elizabeth, British author and daughter of former Prime Minister H. H. Asquith, First Earl of Oxford and Asquith, 48, April 7.

Bohrer, Dr. John V., thoracic surgeon, 59, Dec. 6.

Bong, Major Richard, U. S. A. air ace, 24, Aug. 6.

Bourdet, Edouard, French playwright, 57, Jan. 17.

Bow, Dr. Warren E., Detroit educator, 53, May 11.

Bowley, Lieut. Gen. Albert J., a former commander in the First World War, 68, May 22.

Boynton, George R., portrait painter of Army and Navy figures, 90, Jan. 6.

Braithwaite, Gen. Sir Walter P., British soldier in the First World War, 79, Sept. 9.

Brandeis, Mrs. Alice Goldmark, labor champion and widow of Justice Louis D. Brandeis, 79, Oct. 11.

Brann, Major Gen. Donald W., deputy commander of American forces in Austria, 50, Dec. 29.

Braun, Max, German Socialist and anti-Nazi leader in the Saar, 52, July 3.

Brewster, Brig. Gen. David L. S., Marine Corps officer, 57, July 10.

Brezing, Dr. Herman, former president of Wagner College (Staten Is.), July 1.

Brinser, Harry L., Rear Admiral U. S. N., 69, Dec. 9.

Brock, Gustav Frederick, Danish-American portrait and miniature painter, 64, Feb. 4.

Broyles, Rev. Dr. Joseph W., president of West Virginia Wesleyan College, 44, Sept. 29.

Brun, Constantin, former Danish Minister to the United States, 85, Dec. 23.

Bryan, Charles W., former Governor of Nebraska, 78, March 4.

Bryant, Frederick H., Federal jurist, 68, Sept. 4.

Buckner, Lieut. Gen. Simon B., commander of the U. S. Tenth Army on Okinawa, 58, June 18.

Bull, Johan, Norwegian-American artist, etcher, and illustrator, 51, Sept. 12.

Burke, Thomas, British novelist and essayist, 59, Sept. 22.

Burlew, Ebert K., former First Assistant Secretary of the Department of the Interior, 60, Oct. 20.

Burstall, Lieut. Gen. Sir Henry, Canadian soldier, Feb. 8.

Buzzard, Sir E. Farquhar, British neurologist and royal physician, 73, Dec. 18.

Byas, Hugh, newspaper correspondent, 70, March 6.

Byrne, Dr. Joseph G., former dean of Fordham University Medical School, 74, May 13.

Cabot, Dr. Hugh, physician and public health leader, 74, Aug. 14.

Calder, A. Stirling, sculptor, 74, Jan. 6.

Calder, William M., former U. S. Senator (N. Y.), 76, March 3.

Calles, Gen. Plutarco Elias, former President of Mexico, 68, Oct. 19.

Camacho, Gen. Maximino Avilo, Mexican Secretary of Communications, brother of the President of Mexico, 51, Feb. 17.

Cameron, Sir David, Scottish painter and etcher, 80, Sept. 16.

Cannon, Dr. Walter B., Harvard neurologist, 73, Oct. 1.

Cantzen, Conrad, character actor, 78, June 28.

Caparn, Harold ap Rhys, landscape architect, 81, Sept. 24.

Carlin, Francis, poet, 62, March 11.

Carlson, John F., landscape painter, 69, March 20.

Carr, Emily, artist and author, 74, March 2.

Cary, George, architect and former president of the American Institute of Architects, 86, May 5.

Cashin, Right Rev. Mgr. William E., former chaplain of Sing Sing Prison, 73, Jan. 17.

Cassel, Prof. Gustav, Swedish authority on monetary and international economic problems, 78, Jan. 14.

Cassirer, Dr. Ernst, German philosopher, 70, April 13.

Caviglia, Enrico, Italian marshal, 82, March **22.**

Cederstrom, Baroness, Swedish actress, 84, Jan. 4.

Chambers, Bertram Mordaunt, British admiral in the First World War, 78, April 26.

Chandler, U. S. N., Rear Admiral Theodore E., 50, Jan. ?

Chapin, Simeon B., banker and philanthropist, 79, Jan. 3.

Chapman, Dr. Frank M., ornithologist and curator emeritus of Birds, American Museum of Natural History, 81, Nov. 15.

Charlesworth, Hector W., Canadian newspaperman and author, 73, Dec. 29.

Charlety, Dr. Sebastien, former rector of the University of Paris, 78, Feb. 8.

Charnwood, First Baron, British legislator and biographer, 80, Feb. 3.

Chatfield-Taylor, Hobart C., author, 80, Jan. 16.

Chauvel, Gen. Sir Henry, Australian cavalry leader, 79, March 4.

Cheney, Russell, artist, 63, July 12.

Chernyakhovsky, Gen. Ivan D., Russian tank commander, 37, Feb. 18.

Chittenden, Alice Hill, secretary of the New York Chapter, American Red Cross, Oct. 2.

Clark, Prof. Guy G., artist and dean of the Cooper Union Art School, 62, April 16.

Clarke, James, Canadian-born book publisher, 93, Sept. 4.

Clarke, John H., retired Associate Justice of the United States Supreme Court, 87, March 22.

Claypool, Gen. John M., Confederate leader and former head of the United Confederate Veterans, 98, June 11.

Clendening, Dr. Logan, physician, teacher, and medical author, 60, Jan. 31.

Close, Ralph W., former Minister of the Union of South Africa at Washington, 77, March 21.

Coborn, Charles, British comedian, 93, Nov. 23.

Cockran, Mrs. Anne Ide, widow of Bourke Cochran and recipient of R. L. Stevenson's deed of his birthday (Nov. 13), 68, Jan. 7.

Coffey, Dr. Denis J., former president of Dublin University College, April 3.

Cohen, Rabbi Samuel M., executive director of the United Synagogue of America, 59, Aug. 29.

Colenbrander, Dr. Herman T., Dutch historian, 74, Oct. 12.

Coleman, Major Gen. Frederick W., governor of the U. S. Soldiers Home at Washington, 66, Jan. 5.

Commons, John R., educator and economist, 82, May 11.

Condon, Dr. John F., Lindberg kidnaping case figure, 84, Jan. 2.

Connick, Charles J., stained glass craftsman, 70, Dec. 28.

Consett, Rear Admiral Montagu W. W. P., British naval authority and author, 73, March 7.

Corbett, Lamert S., Dean of Men, University of Maine, 57, Feb. 8.

Cox, Louise H. K., portrait painter, 80, Dec. 11.

Crabtree, Dr. James W., secretary emeritus of the National Education Association, 81, June 9.

Craig, Gen. Malin, former Chief of Staff U. S. A., 69, July 25.

Cramer, Boris, Russian-American portrait painter, 84, Feb. ?

Craven, Frank, actor, playwright, and director, 65, Sept. 1.

Crawford, Lindsay, secretary of the National Foreign Trade Council, 76, June 3.

Cret, Dr. Paul P., architect, 68, Sept. 8.

Crewe, Marquess of, British statesman and diplomat, 87, June 20.

Crimont, Most Rev. Joseph R., R. C. Bishop of Alaska, 87, May 20.

Crown, James E., New Orleans newspaper editor, 69, Jan. 10.

Crothers, Robert A., former owner and publisher of *The San Francisco Bulletin*, 91, Feb. 7.

Crow, Carl, newspaper correspondent and author on Chinese subjects, 61, June 8.

Curtin, John, Prime Minister of Australia, 60, July 5.

Curtis, Austen M., research engineer, 55, Dec. 22.

Cutler, Carl Gordon, artist, 72, March 2.

Cutler, Dr. Henry F., former head

of Mount Hermon School for Boys, 83, Oct. 8.

Cutter, Dr. Irving S., dean emeritus, Northwestern University Medical School, 69, Feb. 2.

Dabney, Dr. Charles W., former president of the University of Cincinnati, 89, June 15.

Dalrymple, Hon. Sir Hew H., chairman of trustees of the National Galleries of Scotland, 88, July 12.

Dalton, Test, playwright and author, 70, Dec. 10.

Dammann, Rev. Mother Grace C., president of Manhattanville College of the Sacred Heart (R. C.), 72, Feb. 13.

D'Antalffy, Dezso, Hungarian-born composer and organist, 59, April 29.

Darlington, Dr. Thomas, former Health Commissioner of New York, 86, Aug. 23.

Davis, Dwight F., former Secretary of War, 66, Nov. 28.

Davis, Fay (Mrs. Gerald Lawrence), American-British actress, 72, Feb. 26.

Dawson, Dr. Martin H., pioneer in penicillin therapy, 48, April 27.

Dawson of Penn, First Baron and Viscount, British physician to the Royal Family, 79, March 7.

Dayton, Katharine, playwright and author, 54, March 4.

De Blois, Austen K., president emeritus of the Eastern Baptist Theological Seminary, 78, Aug. 10.

De Casseres, Benjamin, author and editor, 72, Dec. 6.

De Forest, Prof. Alfred V., engineer and creator of the magnaflux test of metals, 56, April 5.

Deland, Margaret W., novelist, 87, Jan. 13.

Deming, Therese O., author of juvenile books on American Indian life, 64, July 14.

Denny, Harold, war correspondent, 56, July 3.

Desborough, Lord (W. H. Grenfell), British sports leader, 89, Jan. 9.

Dick, Charles, former U. S. Senator (Ohio), 87, March 13.

Dickinson, Dr. Roscoe G., dean of the Graduate School, California Institute of Technology, 51, July 13.

Diver, Maud, British novelist and writer on India, 78, Oct. 14.

Dixon, C. Madeleine, author and educator, 56, Dec. 22.

Donoghue, Steve, British jockey, 60, March 23.

Doret, Marcel, French flying ace, 48, Feb. 5.

Douglas, Lord Alfred, son of the Eighth Marquess of Queensberry, author and poet, friend of Oscar Wilde, 74, March 20.

Dreiser, Theodore, novelist, 74, Dec. 28.

Driscoll, Very Rev. Francis A., former president of Villanova College, 55, Feb. 6.

Dunsmore, John Ward, historical painter, 89, Oct. 7.

Easley, Brig. Gen. Claudius M., assistant commander, U. S. 96th Infantry Division at Okinawa, 53, June 19.

Eden, Nils, former Premier of Sweden, 74, June 17.

Edsall, Dr. David L., dean emeritus of the Harvard Medical School and of the Harvard School of Public Health, 76, Aug. 12.

Ekman, Carl Gustaf, former Premier of Sweden, 72, June 15.

Eliot, Rev. Dr. Christopher R., Unitarian clergyman and leader, 89, June 20.

Eliot, Dr. Ellsworth, surgeon, 81, Oct. 30.

Elles, Gen. Sir Hugh, British tank corps officer, 65, July 11.

Ellis, Sir William, British steel industrialist, 84, July 4.

Ellis, Dr. William J., penologist, 52, March 11.

Eno, William P., highway traffic authority, 87, Dec. 3.

Epstein, Jacob, merchant, art collector, philanthropist, 80, Dec. 27.

Ettinger, Dr. William L., former New York Superintendent of Schools, 82, Dec. 25.

Eurich, Dr. Frederick W., English physician and anthrax specialist, 77, Feb. 16.

Evans, Caradoc, Welsh novelist and playwright, Jan. 11.

Evans, Sir David O., Welsh Liberal M. P., 69, June 11.

Fairfax, Beatrice (Mrs. Marie

Manning Gasch), popular columnist, 70, Nov. 28.

Fairfield, Lord (F. A. Greer), British jurist, 81, Feb. 5.

Faivre, Abel, French painter and caricaturist, 78, Aug. 14.

Farrand, Dr. Max, historian and library authority, 79, June 17.

Farrar, Ellen Worcester, educator and co-founder of the Dwight School for girls, 92, Nov. 8.

Faulkner, Leon C., sociologist, 61, Oct. 27.

Fenneman, Dr. Nevin M., founder and head of the Department of Geology, University of Cincinnati, 79, July 4.

Ferdinand, former King of Bulgaria, 84, April ?

Ferguson, Dr. John C., founder and first president of Nanking University in China, 79, Aug. 3.

Ficke, Arthur D., poet and novelist, 62, Nov. 30.

Field, Sir Frederick L., former British Admiral of the Fleet and First Sea Lord, 73, Oct. 24.

Fielding, Edward, stage and film actor, 65, Jan. 10.

Finaly, Horace, Hungarian-born French banker and financier, 73, May 19.

Finlay of Nairn, Viscount, British jurist, 69, June 30.

Fischer, Dr. Hans, German organic chemist and Nobel Prize winner (1930), 63, April 6.

Fiske, Rev. Dr. George W., clergyman, author, and educator, 73, Oct. 10.

Fleming, Sir Ambrose, British electrical physicist, engineer, and inventor, 95, April 19.

Flexner, Bernard, lawyer, philanthropist, and Zionist leader, 80, May 3.

Fogarty, Elsie, English diction authority, 79, July 4.

Foster, Thomas L., former Mayor of Toronto, 93, Dec. 10.

Fourest, Georges, French author, 77, Jan. 27.

Fox, Dr. Dixon Ryan, president of Union College, 57, Jan. 30.

Frank, Dr. Bruno, German novelist and playwright, 58, June 20.

Fraser, Leon, president of the First National Bank of New York, 55, April 8.

Friday, David, former president of Michigan Agricultural College, 68, March 16.

Gagnon, Msgr. Cyrille, rector of Laval University, Quebec, Nov. 2.

Garran, Frank, W., dean of Thayer School of Engineering, Dartmouth College, 51, Sept. 18.

Garrison, Dr. Sidney C., president of George Peabody College for Teachers, 57, Jan. 18.

Garvie, Rev. Dr. Alfred E., British theologian and Congregationalist leader, 84, March 7.

Gaul, Dr. Harvey B., organist and composer, 64, Dec. 1.

Gay, Byron, composer of popular songs, 59, Dec. 23.

Gayford, Oswald R., British Air Commodore, 52, Aug. 10.

Gillespie, Dr. Robert D., British psychiatrist and physician, 47, Oct. 30.

Glasgow, Ellen A. G., novelist of the South, 71, Nov. 21.

Godfrey, Brig. Gen. Stuart C., aviation engineer, 59, Oct. 19.

Goebbels, Dr. Paul Joseph, German propaganda minister, 47, May 1?

Goodenough, Sir William, British admiral in the First World War, 77, Jan. 30.

Goodman, Dr. Charles, surgeon and pioneer in blood transfusion, 73, May 23.

Goodrich, Brig. Gen. Donald R., commander of 8th Air Force Service Command, 50, July 12.

Goodrich, Louis, British actor, playwright, and novelist, Jan. 30.

Goodwin, Vice Admiral Sir George, former chief engineer of the British Fleet, 82, April 5.

Gordon, Charles, managing director of the American Transit Association, 54, May 3.

Gordon, Manya (Mrs. Simeon Strunsky), socialist, author, 63, Dec. 27.

Gorrell, Col. Edgar S., president of the Air Transport Association of America, 54, March 5.

Goschen, Sir Harry, British banker, 79, July 7.

Gossler, Philip G., public utilities leader, 74, May 18.

GOSSELIN, MILENA PAVLOVICH-BARILLI, Yugoslav artist, 34, March 6.

GOUDISS, DR. C. HOUSTON, home economist and author, 64, Oct. 29.

GRANACH, ALEXANDER, Polish-born stage and screen actor, 54, March 14.

GRANT, HEBER J., president of the Mormon Church, 88, May 14.

GREENE, AINSLIE W., Canadian jurist, 65, Oct. 18.

GRIFFITHS, GEORGE A., former British Labor M. P., 65, Dec. 15.

GRIMM, GEORGE, Wisconsin jurist, 84, Oct. 18.

GULICK, REV. DR. SIDNEY L., Congregational missionary in Japan and author, 85, Dec. 20.

HACHA, DR. EMIL, former puppet president of Czechoslovakia, 73, June 27.

HAKING, GEN. SIR RICHARD, British officer and diplomat, 83, June 9.

HALSEY, COL. EDWIN A., secretary of the United States Senate, 63, Jan. 29.

HAMILTON, ELWOOD, Federal jurist (Ky.), 62, Sept. 19.

HANSON, VICTOR H., Alabama newspaper publisher, 69, March 7.

HARMON, COL. CLIFFORD B., capitalist and aviation pioneer, 79, June 25.

HARMON, LIEUT. GEN. MILLARD F., commander of the U. S. Army Air Forces of the Pacific Ocean Areas, 57, March ?

HARRINGTON, EMERSON C., former Governor of Maryland, 81, Dec. 15.

HART, LUCILLE M., social worker in New York Catholic Charities, 47, Dec. 21.

HARTNEY, LIEUT. COL. HAROLD E., flier in the First World War, 57, Oct. 5.

HARVEY, PROF. RODNEY B., plant physiologist, 55, Nov. 4.

HATFIELD, DR. JAMES T., Germanics scholar and author, 83, Oct. 3.

HAY, CHARLES M., deputy chairman and executive director of the War Manpower Commission, 64, Jan. 16.

HAYES, MAX S., pioneer labor editor, 79, Oct. 11.

HAYWARD, F. HAROLD, American portrait painter, 84, July 2.

HAZARD, CAROLINE, educator, author, and former president of Wellesley College, 88, March 19.

HERRICK, DR. WILLIAM W., president of the New York Academy of Medicine, 66, June 1.

HERRING, CLYDE L., former U. S. Senator and former Governor of Iowa, 66, Sept. 15.

HERSHEY, MILTON S., manufacturer and philanthropist, 88, Oct. 13.

HILL, DR. LOUIS DANA, former Dean of Studies at Hunter College, 74, June 24.

HILL, DR. ROBERT T., sociologist and educator, 64, Feb. 24.

HITLER, ADOLF, dictator of Germany, 56, May 1?

HOFFMAN, GUSTAVE A., etcher, 76, Aug. 30.

HOLGATE, DR. THOMAS F., former president *ad interim* of Northwestern University, 86, April 11.

HOLSTI, DR. RUDOLF, former Foreign Minister of Finland, 62, Aug. 3.

HOPEKIRK, MME. HELEN (Wilson), Scotch-American pianist, 89, Nov. 19.

HOPKINS, DR. NEVIL M., inventor and author, 71, March 26.

HORWOOD, SIR WILLIAM H., Chief Justice of Newfoundland, 82, April 7.

HOWARD, MRS. ALICE STURTEVANT, founder American Merchant Marine Library Association, 67, Oct. 7.

HOWELL, DR. WILLIAM H., physiologist and dean emeritus of the School of Hygiene and Public Health, Johns Hopkins University, 70, Feb. 6.

HOYNS, HENRY, chairman of Harper and Brothers, 76, Jan. 23.

HUGHES, MRS. CHARLES EVANS, wife of the former Chief Justice of the United States, 81, Dec. 6.

HUIZINGA, PROF. JOHAN, Dutch educator, essayist, and historian, 72, March 22.

HUN, DR. JOHN GALE, founder and headmaster of the Hun School, 67, Sept. 15.

HUNTER, GLENN, stage and screen actor, 49, Dec. 30.

HUTCHINSON, DR. GEORGE W., secretary of the National Geographic Society, 58, March 24.

JELLIFFE, DR. SMITH ELY, neuropsychiatrist, 78, Sept. 25.

JENCKS, DR. MILLARD H., president of the St. Lawrence University, 63, Feb. 14.

JENKINS, REV. DR. BURRIS A., liberal

clergyman and former president of the University of Kentucky, 75, March 13.

Jimenez (Oreamuno), Ricardo, former President of Costa Rica, 85, Jan. 4.

Johnson, Eldridge R., phonograph industrialist and philanthropist, 78, Nov. 14.

Johnson, Hiram W., U. S. Senator from California, 78, Aug. 6.

Johnson, William E. ("Pussyfoot"), prohibition crusader, 82, Feb. 2.

Jones, Dr. Louis C., industrial chemist, 75, Dec. 29.

Kalish, Max, Polish-born American sculptor, 54, March 18.

Keane, Doris, actress, 64, Nov. 25.

Keller, William H., Pennsylvania jurist, 76, Jan. 16.

Kemmerer, Dr. Edwin W., educator and monetary expert, 70, Dec. 16.

Kennedy, Walter B., acting dean of Fordham University Law School, 61, Dec. 30.

Kent, William, actor, 59, Oct. 4.

Kerley, Dr. Charles G., pediatrician, 82, Sept. 7.

Kern, Jerome, composer, 60, Nov. 11.

Kernan, Major Gen. Francis J., veteran of Spanish-American and First World Wars, 86, Feb. 3.

Key, Pierre van R., music editor and critic, 73, Nov. 28.

Keyes, Roger J. B., first Baron Keyes, British admiral, 73, Dec. 26.

Knoblock, Edward, American-born British playwright, 71, July 19.

Knubel, Rev. Dr. Frederick H., president emeritus of the United Lutheran Church in America, 75, Oct. 16.

Kops, Waldemar, president of Mount Sinai Hospital, New York, 55, Jan. 13.

Korn, Dr. Arthur, German radiophoto pioneer, 75, Dec. 21.

Korngold, Dr. Julius, Viennese music critic, 84, Sept. 25.

Krofta, Dr. Kamill, former Foreign Minister of Czechoslovakia, 69, Aug. 18.

Kummell, Dr. Henry B., New Jersey geologist, 78, Oct. 23.

Kurn, James M., former president of the St. Louis and San Francisco Railroad, 74, Jan. 13.

Ladd, Mrs. Kate Macy, philanthropist and founder of the Josiah Macy Jr. Foundation, 82, Aug. 27.

Lagercrantz, Herman, Swedish steel industrialist and former Minister to the U. S., 86, Sept. 28.

Laing, Dr. Gordon J., classical scholar, University of Chicago, 75, Sept. 1.

Lake, Simon, submarine inventor, 78, June 23.

Lalique, René, French artisan in jewelry and glassware, 86, May 9.

Lang, Cosmo Gordon, Lord Lang of Lambeth, former Archbishop of Canterbury, 81, Dec. 5.

Lanier, Charles D., former editor of *The Review of Reviews* and author, 77, Nov. 17.

Larsen, Hanna Astrup, Norwegian-American author, editor, and translator, 72, Dec. 3.

Latzko, Dr. William, Austrian obstetrician and gynecologist, 81, Feb. 4.

Laval, Pierre, former Premier of France and of Vichy, France, 62, Oct. 15.

La Verne, Lucille, actress, 72, March 4.

Lea, Luke, former U. S. Senator (Tenn.), 66, Nov. 18.

Le Clercq, Rev. Henri, French priest and compiler of a dictionary of Christian archaeology, 76, March 23.

Lee, Jr., Willis A., Vice Admiral U. S. N., naval tactician in the Second World War, 57, Aug. 25.

Lehman, Irving, Chief Judge of the New York State Court of Appeals, 69, Sept. 22.

Lewis, Sir Thomas, British heart specialist, 68, March 17.

Lewis, Dr. William M., former president of Lafayette College and of George Washington University, 67, Nov. 11.

Ley, Dr. Robert, former chief of the German Labor Front, 55, Oct. 25.

Liebling, Leonard, music critic, editor, and librettist, 71, Oct. 28.

Lindsay, Hon. Sir Ronald, former British ambassador to the United States, 68, Aug. 21.

Little, Dr. Andrew G., British authority on medieval manuscripts, 82, Oct. 22.

Lloyd George, David, First Earl of Dwyfor, Prime Minister of Great

Britain in the First World War, 82, March 26.

Locke, Edward, playwright, 76, April 1.

London, Frank M., still-life painter and stained-glass designer, 68, March 10.

Lovejoy, Dr. Frank W., industrialist and civic leader, 74, Sept. 16.

Lucas, Albert Pike, painter and sculptor, 83, May 2.

Luguet, Major Gen. Charles, air attaché of the French Embassy in Washington, 49, Dec. 15.

Lumsden, Lieut. Gen. Herbert, British representative with the army of Gen. Douglas MacArthur, 47, Jan. 6.

Lyman, Major Gen. Charles H., U. S. Marine Corps commander, 69, July 23.

Lyons, John J., former Secretary of State of New York State, 64, Feb. 27.

MacCallum, Rev. Frederick W., Canadian missionary, linguist, and translator of the Bible into Turkish, 83, Nov. ?

Macfarlane, William C., organist and composer of sacred music, 74, May 12.

Mackensen, Field Marshal August von, German military leader in the First World War, 95, Nov. 8.

MacLaren, Prof. Malcolm, electrical engineer, 76, Sept. 24.

MacLean, Dr. James A., former president of Idaho State University and University of Manitoba, 76, Jan. 18.

MacRory, Joseph, Cardinal, archbishop of Armagh, Catholic Primate of Eire, 84, Oct. 13.

Macwatt, Major Gen. Sir Charles, Director General of the Indian Medical Service, 80, April 14.

Malburn, William P., former Assistant Secretary of the Treasury, 78, April 9.

Mallet-Stevens, Robert, French architect, 58, Feb. 10.

Maloney, Francis T., U. S. Senator (Conn.), 50, Jan. 16.

Manson, James B., British artist and former director of the Tate Gallery, 66, July 3.

Marion, George, actor and stage director and producer, 85, Nov. 30.

Marks, Edward B., popular song writer and publisher, 80, Dec. 17.

Marriott, Sir John, English historian and former M. P., 85, June 7.

Marsh, Dr. Howard D., psychologist, educator, author, 74, Aug. 26.

Martin, George B., former U. S. Senator (Ky.), 69, Nov. 12.

Mascagni, Pietro, Italian composer and musician, 81, Aug. 2.

Mather, Winifred Holt, founder of the New York Association for the Blind, June 14.

Maud of Fife, Princess, Countess of Southesk, cousin of King George VI, 52, Dec. 14.

McCain, Vice Admiral John S., commander of the Carrier Task Force of the Third Fleet, U. S. N., 61, Sept. 6.

McCormack, John, Irish-born tenor, 61, Sept. 16.

McGilvrey, Dr. John E., first president of Kent (O.) State University, 78, Oct. 4.

McLarty, Norman A., Canadian Secretary of State, 56, Sept. 16.

McNab, Archibald P., former Governor of Saskatchewan, 81, April 29.

Melo, Prudenzio, Archbishop of Valencia (Spain), 85, Oct. 31.

Mensdorff, Count Albert von, veteran Austrian diplomat, 84, June 17.

Merriam, Dr. John C., president emeritus of the Carnegie Institution of Washington, 76, Oct. 30.

Merriam, Dr. Roger Bigelow, educator and historian, 69, Sept. 7.

Mitchell, Sir Peter C., British zoologist and former secretary of the London Zoo, 80, July 2.

Moncado, Gen. José M., former President of Nicaragua, 76, Feb. 23.

Morgan, Rev. Dr. G. Campbell, British Congregational clergyman and Biblical scholar, 81, May 16.

Morgan, Dr. John J., psychologist, 56, Aug. 16.

Morgan, Dr. Thomas H., biologist and authority on heredity, 79, Dec. 4.

Morosco, Oliver, former theatrical producer, 69, Aug. 25.

Morrell, Mrs. Louise B. Drexel, philanthropist, 81, Nov. 5.

Morris, Roland S., former U. S. Ambassador to Japan, 71, Nov. 23.

Moses, John, U. S. Senator (N. D.), 59, March 3.

Motherwell, Hiram, author, editor, and newspaper correspondent, 57, Dec. 1.

Mott, James W., Representative in Congress (Ore.), 62, Nov. 12.

Mott, William E., former dean of engineering, Carnegie Institute of Technology, 77, Oct. 5.

Mudge, Rev. Dr. Lewis S., former stated clerk of the General Assembly of the Presbyterian Church in the U. S., 76, April 29.

Muirhead-Gould, Rear Admiral G. C., British officer at German surrender of Helgoland, 56, June 26.

Murdock, Victor, Kansas newspaper editor and former Congressman, 74, July 8.

Murphy, Hermann Dudley, painter and illustrator, 77, April 16.

Murray, Gen. Sir Archibald, former chief of the Imperial General Staff, 84, Feb. 10.

Mussolini, Benito, former Premier and Dictator of Italy, 61, April 28.

Mustapha El Maraghi, rector of Azhar University (Egypt), 72, Aug. 22.

Nairne, Sir Gordon, former controller and director of the Bank of England, 84, Feb. 9.

Nazimova, Alla, Russian-born stage and screen actress, 66, July 13.

Negri, Ada, Italian poet and novelist, 74, Jan. 13.

Neuman, Dr. Wladyslaw, Polish Minister to Mexico, 52, Jan. 24.

Neurath, Dr. Otto, Austrian-born British sociologist, 63, Dec. 22.

Newberry, Truman H., former Secretary of the Navy and former U. S. Senator (Mich.), 80, Oct. 3.

Newton, Sir Louis, former Lord Mayor of London, 77, April 17.

Nicholson, Dr. Reynalds A., British Arabic scholar and classicist, 77, Aug. 31.

Nock, John Jay, author and critic, 72, Aug. 19.

Norris, Charles G., novelist, 64, July 25.

Norton, William W., book publisher, 54, Nov. 7.

Noyes, Alexander D., financial editor and author, 82, April 22.

O'Brien, Edward F., publisher of *The Times of Cuba,* 68, Jan. 19.

O'Connor, James F., Representative in Congress (Montana), 66, Jan. 15.

Olivier, Marcel, French colonial administrator, 65, Jan. 4.

Olmstead, Dr. Albert Ten Eyck, orientalist, 65, April 11.

O'Meara, Patrick M., architect, 55, Oct. 26.

Onslow, Fifth Earl of, British public official, 68, June 9.

O'Shea, Most Rev. William F., former secretary general of Maryknoll Seminary, 60, Feb. 27.

Ostberg, Ragnar, Swedish architect, 78, Feb. 6.

Oumansky, Constantine A., Soviet Ambassador to Mexico and former Soviet Ambassador to the U. S., 42, Jan. 25.

Oxford and Asquith, Dowager Countess of (Margot Asquith), widow of the former Prime Minister of Great Britain, 81, July 28.

Palmer, Lew Russell, a founder and official of the National Safety Council, 70, March 24.

Parsons, James A., New York State jurist and former Attorney General, 76, March 4.

Partridge, Sir Bernard, British artist and *Punch* cartoonist, 83, Aug. 9.

Pasternak, Leonid, Russian painter and illustrator, 83, June 5.

Patch, Jr., Lieut. Gen. Alexander M., veteran officer of the First and Second World Wars, 55, Nov. 21.

Patrick, Major Gen. Edwin D., former Chief of Staff of U. S. Sixth Army, 51, March ?

Patten, George W. (Burt L. Standish), author of the "Frank Merriwell" stories for boys, 78, Jan. 16.

Patton, Jr., Gen. George S., 60, Dec. 21.

Pelliot, Paul, French linguist and Oriental authority, 67, Oct. 29.

Pendergast, Thomas J., former Kansas City (Mo.) political "Boss," 72, Jan. 26.

Phipps, Sir Eric, British diplomat, former ambassador to France and Germany, 70, Aug. 13.

Piccirilli, Attilio, Italian-born sculptor, 77, Oct. 8.

Porter, Newton H., New Jersey jurist, 69, May 16.

Pratt, Frederic B., civic and cultural leader and former president of Pratt Institute, 80, May 3.

Pratt, Herbert Lee, oil industrialist and financier, 73, Feb. 3.

Prettyman, Rev. Dr. Forrest J., former chaplain of the U. S. Senate, 85, Oct. 12.

Price, Brigadier Gen. Harrison J., veteran of the First World War, 77, Sept. 16.

Prince, Dr. John D., linguist and diplomat, 77, Oct. 11.

Pueyrredon, Honorio, former Argentine Foreign Minister and ambassador at Washington, 73, Sept. 23.

Pyle, Ernie, war correspondent, 44, April 18.

Quisling, Vidkun, Norwegian traitor, 58, Oct. 24.

Ragg, Dr. Lonsdale, church of England clergyman and Archdeacon of Gibraltar, 78, Aug. 2.

Rainier, Major Peter W., British soldier, author, and mining and water supply expert, 55, July 6.

Ralston, Jackson Harvey, international law authority and former counsel for the American Federation of Labor, 88, Oct. 13.

Ramsay, Admiral Sir Bertram Home, British naval officer who saved the British Army at Dunkerque, 61, Jan. 2.

Rand, Dr. Edward K., Harvard classical scholar, 73, Oct. 28.

Randall, Albert B., Rear Admiral U. S. N., 70, Dec. 1.

Randall-MacIver, David, archaeologist and author, 71, April 30.

Rapee, Erno, Hungarian-born conductor and composer, 55, June 26.

Rathbone, Dr. Henry B., former head of Department of Journalism, New York University, 74, June 13.

Record, Prof. Samuel J., dean of the Yale University School of Forestry, 63, Feb. 3.

Reid, Sr., Frank R., former Representative in Congress, 65, Jan. 25.

Reinhardt, Paul, former head of the Reinhardt Galleries, 56, Jan. 13.

Richards, Prof. Robert H., chemical and metallurgical educator and inventor, 100, March 27.

Richmond, Dr. Winifred V., psychologist and author, 68, July 6.

Riddell, William R., Canadian jurist and author, 92, Feb. 18.

Riggs, Thomas, former Governor of Alaska, 72, Jan. 16.

Rives, Amelie (Princess Pierre Troubetzkoy), novelist, playwright, poet, 81, June 15.

Robins, Margaret Dreier, leader in welfare of women and children in industry, 76, Feb. 21.

Robinson, Holton D., bridge engineer, 82, May 7.

Roedder, Dr. Edwin C., authority in German Philology and folklore, 72, Oct. 21.

Roosevelt, Franklin Delano, President of the United States, 63, April 12.

Root, Dr. William T., psychologist and dean of the Graduate School of University of Pittsburgh, 62, Jan. 24.

Rose, Hugh E., Chief Justice of the High Court of Ontario, Canada, 77, Oct. 13.

Roseboro, Viola, fiction editor and author, 87, Jan. 29.

Rothenstein, Sir William, British war artist, author, and teacher, 73, Feb. 14.

Rothschild, Baroness Robert de, French welfare worker and philanthropist, 58, Jan. 8.

Royal, Rear Admiral Forrest B., amphibious commander in the Pacific, 52, June 18.

Rupertus, Major Gen. William H., commander of the First Marine Division in the Solomons and New Britain campaigns in the Second World War, 55, March 25.

Russell, Dr. James E., dean emeritus of Teachers College, Columbia University, 81, Nov. 4.

Ryan, Msgr. John, Roman Catholic social welfare authority and liberal leader, 76, Sept. 16.

Salten, Felix, Hungarian-born author, 75, Oct. 8.

Sampson, Homer L., roentgenologist, 65, May 16.

Sandrich, Mark R., film producer, 44, March 4.

Sanford, Dr. Steadman V., chancellor of the University System of Georgia, 74, Sept. 15.

Scarbrough, Tenth Earl of, English landowner, 87, March 4.

Schaff, Charles E., former president of the Missouri, Kansas, Texas R. R., 89, Nov. 4.

Schelling, Dr. Felix E., author and Elizabethan scholar, 87, Dec. 15.

Schleich, Very Rev. Michel, inspector general of the Catholic Marianist Schools, 82, April 26.

Schoenberg, Dr. Mark J., ophthalmologist, founder of the New York Society for Clinical ophthalmology, 70, Feb. 15.

Schrembs, Joseph, Archbishop of Cleveland, 79, Nov. 2.

Scott, Cyril, actor, 79, Aug. 16.

Scrugham, James G., U. S. Senator (Nev.), 65, June 23.

Seabrook, William B., journalist, explorer, author, 59, Sept. 20.

Seabury, George T., executive secretary of the American Society of Civil Engineers, 65, May 25.

Seibold, Louis, newspaper correspondent and author, 81, May 10.

Seredi, Justinian, Cardinal, Primate of Hungary, 61, April ?

Sert, José Maria, Spanish mural painter, 69, Nov. 27.

Shaposhnikoff, Boris, Russian marshal and former Chief of the General Staff of the Russian army, 62, March 27.

Shattuck, L. Hubbard, director and secretary of the Chicago Historical Society, 54, March 29.

Shaw, Samuel T., art patron, 84, Feb. 10.

Shear, Dr. Theodore Leslie, Princeton archaeologist, 64, July 3.

Sheehan, Most Rev. Michael, former Archbishop Coadjutor of Sydney (Australia), 75, March 1.

Sheehan, Winfield R., film producer, 61, July 25.

Shipley, Dr. Frederick W., former dean of School of Graduate Studies, Washington University, 74, Feb. 11.

Siloti, Alexander, Russian-born pianist, 82, Dec. 8.

Silver, Dr. Henry Mann, surgeon, 94, Sept. 27.

Simon, Lucien, French painter, 84, Oct. 15.

Simons, Moises, Cuban composer and conductor, 56, June 28.

Sladen, Major Gen. Fred W., former Superintendent and Commandant at West Point, 78, July 10.

Sloan, Matthew S., chairman and president of the Missouri, Kansas, and Texas R. R., 63, June 14.

Smith, Arthur D. Howden, journalist and author, 57, Dec. 18.

Smith, Daniel C., educational leader and philanthropist, 79, June 23.

Smith, Lady Eleanor, British novelist, 42, Oct. 20.

Smith, Harry Worcester, sportsman and inventor, 79, April 5.

Smith, Col. Lowell H., pioneer aviator, 53, Nov. 4.

Speaks, Gen. John C., former Representative in Congress (Ohio), 86, Nov. 6.

Spearman, Charles E., British psychologist, 82, Sept. 17.

Spencer, Robert L., former dean of the Engineering School, University of Delaware, 58, Oct. 10.

Stanfield, Robert N., former U. S. Senator (Ore.), 68, April 13.

Staub, Walter A., accounting and tax authority, 69, Nov. 4.

Steadman, Jr., Dr. John M., teacher of English and author, 56, Dec. 20.

Stebbins, Dr. George C., hymn writer, 99, Oct. 6.

Stein, Simon N., merchant and philanthropist, 76, Feb. 1.

Steiner-Prag, Prof. Hugo, book designer and illustrator, 65, Sept. 10.

Stephanie, Countess Lonyay, widow of Archduke Rudolph of Austria, 81, Sept. ?

Stinchcomb, Dr. James, head of the Department of Classics, University of Pittsburgh, 47, July 13.

Stralia, Elsa, Australian singer, 64, Aug. 31.

Stuart, Lieut. Gen. Kenneth, Canadian military engineer, 50, Nov. 3.

Sussman, Harry, naval architect, 54, Dec. 13.

Swaney, William B., Tennessee jurist, 87, July 28.

Sykes, Eugene O., Mississippi jurist, 68, June 21.

Sykes, Brig. Gen. Sir Percy, British soldier, diplomat, and author, 78, June 11.

SYMONS, ARTHUR, British poet, critic and translator, 79, Jan. 22.

SZOLD, HENRIETTA, founder of Hadassah (Jewish woman's organization) and Zionist, 84, Feb. 13.

TABLADA, JOSÉ JUAN, Mexican poet and educator, 74, Aug. 2.

TAFT, HENRY W., lawyer, author, brother of former President W. H. Taft, 86, Aug. 12.

TARDIEU, ANDRÉ, French diplomat, philosopher, statesman, and former Premier of France, 68, Sept. 15.

TCHEREPNINE, NICHOLAS, Russian composer, 72, June 28.

TEWKSBURY, REV. ELWOOD G., educator, missionary, and religious leader in China, 80, Nov. 5.

THOMAS, JOHN, U. S. Senator (Idaho), 71, Nov. 10.

THOMPSON, OSCAR, music critic, 57, July 3.

TISDEL, ALTON P., Superintendent of Documents of the U. S. Printing Office, 65, June 1.

TOLSTOY, ALEXEI, Russian author, 62, Feb. 23.

TOLSTOY, COUNT LEO, third son of the Russian novelist, 76, Oct. 18.

TOURET, RIGHT REV. FRANK H., former Episcopal Bishop of Idaho, 70, Aug. 2.

TOWNLEY, SIR WALTER B., British diplomat, 82, April 7.

TOWNSEND, ERNEST N., artist and illustrator, 52, Oct. 16.

TRAIN, ARTHUR, novelist and playwright, 70, Dec. 22.

TRELEASE, PROF. WILLIAM, educator and botanist, 87, Jan. 1.

TRUESDALE, DR. PHILEMON E., Canadian-born surgeon, 70, June 12.

TULLY, RICHARD WALTON, playwright, 67, Jan. 31.

TUPPER, SIR REGINALD G. O., British admiral, 85, March 6.

TURNER, JOHN VICTOR (David Hume), English writer of mystery books, 44, Feb. 3.

ULLSTEIN, DR. FRANZ, refugee German newspaper and book publisher, 77, Nov. 12.

UPHAM, DR. ALFRED H., president of Miami University (Ohio), 67, Feb. 17.

VALERY, PAUL, French poet, philosopher, and critic, 73, July 20.

VAN ANDA, CARR V., former managing editor, *The New York Times*, 80, Jan. 28.

VAN DE WATER, VIRGINIA TERHUNE, novelist and writer of short stories, Oct. 17.

VAN RENSSELAER, STEPHEN, author, antique collector, and authority on early American firearms, 50, Dec. 17.

VERA Y ZURIA, MOST REV. PEDRO, R. C. Archbishop of Pueblo de Los Angeles, Mexico, 72, July 30.

VINSON, DR. ROBERT E., former president of Western Reserve University, 68, Sept. 2.

VREELAND, HERBERT H., industrialist and financier, 88, Jan. 31.

WAINWRIGHT, COL. JONATHAN M., former Assistant Secretary of War and former Congressman, 80, June 3.

WAITE, DR. MERTON B., horticulturist, botanist, and plant pathologist of the U. S. Department of Agriculture, 80, June 5.

WAKE-WALKER, ADMIRAL SIR W., Third Sea Lord and Controller of the British Navy, 57, Sept. 24.

WALDRON, WEBB, editor and author, 62, Aug. 5.

WALKER, THOMAS J., Associate Judge of the U. S. Customs Court, 67, Jan. 18.

WARRENDER, LADY MAUD, British concert singer and author, 74, Sept. 3.

WATKINS, G. LAW, associate director of the Phillips Memorial Gallery and art educator, 59, March 2.

WATKINS, WILLIAM R., jurist, author, and special assistant to the U. S. Attorney General, 48, Dec. 10.

WATSON, MAJOR GEN. EDWIN M., secretary and military aide to President Roosevelt, 61, Feb. 20.

WEAVER, ARTHUR J., former Governor of Nebraska, 71, Oct. 18.

WERFEL, FRANZ, Czech-born author, 54, Aug. 26.

WERNER, CARL A., editor, author, tobacco authority, 72, Feb. 18.

WHITE, ALFRED G. H., British librarian, 85, July 8.

WHITELAW, EDWARD A., a founder and musical director of the Brooklyn Conservatory of Music, 76, Dec. 4.

WIESELTHIER, VALLY, ceramic artist and sculptress, 50, Sept. 1.

WIEST, HOWARD, Michigan jurist, 81, Sept. 16.

WILLIAMS-TAYLOR, SIR FREDERICK, Canadian international banker, 81, Aug. 2.

WILSON, DR. MARGARET B., educator and food authority, 82, Oct. 8.

WING, MAJOR GEN. LEONARD F., former commander of the Forty-third Division in the Pacific campaigns of the Second World War, 52, Dec. 19.

WITCHIEF, GRAHAM, New York jurist, 69, Jan. 11.

WITOS, WINCENTY, former Premier of Poland, 71, Oct. 31.

WOOD, DR. EDITH E., housing authority and author, 73, April 29.

WOOD, FRANKLIN T., etcher, painter, and wood carver, 67, May 22.

WOODS, MARGARET L. BRADLEY (Mrs. H. G. Woods), English poet and novelist, 89, Dec. 1.

WOODWARK, SIR STANLEY, British physician and president of the Royal Institute of Public Health and Hygiene, 70, May 12.

WOOLLEY, VICTOR B., Federal jurist (Del.), 77, Feb. 22.

WOOLSEY, JOHN M., Federal jurist (N. Y.), 68, May 4.

WYETH, NEWELL C., artist and illustrator, 62, Oct. 19.

WYNTER, LIEUT. GEN. HENRY D., Australian soldier, 58, Feb. 7.

YERMOLAIEFF, MAJOR GEN. VLADIMIR, Russian military engineer and airplane designer, 40, Jan. 5.

YOAKUM, DR. CLARENCE S., dean of the Graduate School, University of Michigan, 66, Nov. 20.

YOUNG, DR. HUGH H., surgeon and urologist, 74, Aug. 23.

ZACHRY, DR. CAROLINE B., psychologist, educator, and child guidance leader, 50, Feb. 22.

ZULOAGA, IGNAZIO, Spanish painter, 75, Oct. 31.

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